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INTRODUCTION.

FIRST IMPRESSIONS OF MEDICAL PRACTITIONERS

ON SEEING THE PRINCIPLES OF HYDROPATHY CARRIED OUT AT AN ESTABLISHMENT.

I HAVE had medical practitioners, and amongst them several physicians, who have come, without prejudice, to see for themselves upon what principles Hydropathic practitioners profess to act. Within a short period two physicians and several surgeons have been successfully treated at my establishment for ill health they had not been able to cure by their own prescriptions.

The medical profession generally look with contempt on Hydropathy, believing we have no sound principles for the basis of our action, such as they suppose they have in their counter-irritants, setons, issues, mercurial ointment, their soothing narcotics, stimulating quinine, steel mixtures, colchicum, for causing changes in the components of the blood and the tissue; they have little idea we can overcome the most obstinate and long-standing constipation of the bowels by our simple means. They cannot believe mere water can have either the powerful or curative effects of their severer applications, or produce such quick results. In all these points they are in error. We can lower the pulse and subdue inflammation far more rapidly than they can by any of their applications, *and without lowering the vitality of the body.* Surgeons are well aware of the vital importance of procuring immediate perspiration in many cases; now, by a fomenting pack, or cold wet sheet envelope, or spirit lamp, *we never fail to produce it at once.* Their James's powder, &c., have to enter the blood, and go through an elaborate process before they can have effect: the effect is uncertain, and depends a good deal on the power of the stomach to act. We leave the stomach at rest, and, by drawing the secretions through the skin, relieve it, instead of burdening it with what the surgeon knows is likely to cause nausea, and which is very often the result: the medicine then, instead of being beneficial, is highly injurious.

When medical men come without prejudice to examine into our mode of practice they soon see we have a basis and principle to act upon, and that we do not give this or that bath or wash over, hit or miss, to produce some result as likely to do harm as good. No! Every man of good principle will take care he has a clear conviction in his own mind, and the truth of it confirmed by known results, before he will practise. If he has no clear, defined principles upon which he can act with confidence, then he is guilty of a great social sin in acting at all.

My medical visitors have often questioned me on the principles I act upon. I gladly answer their questions, that they may judge for themselves. I never shun questions, having nothing to conceal. If a case comes before me that I cannot see my way in, I am ready and feel bound in principle to acknowledge it; but these are rare indeed. The grand starting-point is to ascertain *what the life of the organic body consists of, and where it is.* Every medically-educated man will say at once it is not in the blood, it is not in the muscle, nor in the bones, nor in the matter of the brain, nor in any organic matter of the body; but it is in the vis vitæ, the power of life developed in the nervous system. Cut certain nerves, and the gastric juice will no longer be secreted to dissolve the food. Lower the vitality of the organic nerves of the stomach, and the healthy assimilation of its contents is stopped. The same by the liver, it is no longer able to draw impurities out of the blood, or manufacture its saccharine matter and red corpuscles. Destroy those nerves, or lower their vitality, and the vital power that holds all in order and gives life is wanting; and so, as I hereafter remark, the nervous fluid, or electricity, or whatever it may be designated, is the life of the body. Without it the substance of the body soon dissolves and decays; with it in full power, all is life and vigour. Now, when we have disease to contend with in whatever degree, this vital power is under par; our aim is to raise it, and that can only be accomplished through the means of the stomach and the blood. No practitioner can cure any ailment, or any wound, or any disease, but by making better blood, and better blood cannot be made but by the influence of these nerves of nutrition. Now, by applying as we do to the surface of the body, we set the most powerful apparatus for purification at work in the whole frame. The skin, with its seven to eight millions of pores, and its miles of corkscrew sebaceous and sudorific glands—we purge through these, and thus relieve the frame of morbid matter which is oppressing the delicate organic nerves; we take away quickly the offensive matter which is sickening the whole frame. The Allopaths, to accomplish this, must put stuff into the stomach they know is an outrage upon its structure and functions. They have to trust to its bearing this trial in order to reach other organs or parts diseased; they give opiates to give sleep and allay pain; they dare not leave the patient without a purgative to endeavour to rouse the nerves they have partly paralysed. Thus in the physician's prescriptions, pil. hydrarg. is always associated with opiates, one to counteract the mischief the other causes, and for this end the doctor always gives them together.

The blue pill over night, which so lowers the power of the nerves, and stimulates the liver to make every effort to expel it again, is followed next morning by a black draught, to whip the poor bowels to expel their contents, without any consideration of their structure and natural office; and so it is with setons, blisters, and issues, and the rest of the inventions for forcing nature to do what the doctor wishes, but in which the poor patient always comes off a loser, present or future. All is war against the frame and its functions. All our treatment, on the contrary, is immediately comforting to the body, with the exceptions of mustard plasters, and those never produce any after-evil results. We produce counter-irritation by our fomentations, our bandages, and our hand-rubbing. The bandages and fomentations comfort and soothe the nerves; the wet body bandages determine blood to any part affected, to give life and action, and so by all our appliances. This system must succeed eventually, because it is founded on principles of reason and truth, which Allopathy is not, by the showing of its own professors.

The organ of the Allopathists, the *Lancet*, of 19th Sept. 1857, says, "It is indisputable that the records of legitimate medicine, so far as treatment is concerned, contain such a heterogeneous assemblage of different and often conflicting views, as to give rise, in some quarters, to the conclusion, which is not unnatural, that the principles of medicine are really unsettled, and that the art itself is purely an arbitrary one, depending on the caprice of the practitioner." There are numberless works defending some new theory of medicine, yet Sir John Forbes, M.D., is compelled to write, "Things have arrived at such a pitch, they cannot be worse: they must mend or end."

Hooper, in his Medical Lexicon, a work of standard authority, repeatedly contradicts his own stated principles. He says, whatever lowers the vital power of the organic nervous system, or, in other words, prevents the due supply of nervous fluid descending from the brain, tends to paralysis; yet as will be seen by my quotation further on, he prescribes bleeding, calomel, blistering, &c., in cases of paralysis, trying to cure by aggravating the mischief already caused by the lowered vitality of these nerves! I have recently shown some cases of crisis to a surgeon; one was a case of congested liver of long standing, the right side weak, and the knee, and especially the leg below, cold. This was caused by the obstructed venous circulation from the extremities. For many years this patient had been under Allopathic treatment without any material relief, and latterly was decidedly worse, which made him lose confidence in his doctor's prescriptions; he came to me to try Hydropathy. By application to the skin we soon got free perspiration. Then by our fomentations to the liver and bowels, and our wet bandages, we soon set the stomach, liver, and bowels to work healthily. Now, our object was to draw the morbid matter in the liver and the other viscera away, but not by purging the bowels. We got a good deal through the skin, but this was not sufficient to cleanse the system. Nature had pointed out another place for effectual relief in the lame leg, and here we followed her hint by wet and dry bandages, and by steaming and hot mustard leg baths, which shortly brought out a crisis, and laid the patient up in bed with legs apparently highly inflamed and swollen, discharging fetid matter. The appetite was little, under this disturbance of the frame, and consequently apparent sinking. Our surgeon was alarmed with the case, and said if it was his he should have little hope of the man's life, and, moreover, would at once give generous diet and some stimulants. I have named this case to illustrate the difference of our practice. I replied to the doctor, I was quite certain the patient would not only survive, but would become entirely sound in every part of his frame. We let nature work her own way, with a little assistance to cool any feverish feelings; stopped all animal food, gave only water, or weak black tea to drink: and when nature had had time to perform her work the patient became perfectly well, and has enjoyed excellent health ever since, now several years ago. I never knew this natural crisis do anything but good. The many deaths of apparently stout persons we hear of from inflammation, or fever, is owing to the inefficiency of any Allopathic means to throw off any inflammation or morbid matter, on to the non-vital parts, or to the surface of the body. Purgatives and blistering, &c., only further lower the nervous vitality, and tonics only stimulate to cause further loss of power by reaction. The mischief is sometimes warded off, but always at the expense of the constitution. The seeds of disease can never be eradicated but in nature's own way, and that must be done without violence to the frame, and only by increasing the nutritive powers.

While saying so much on the evil effects of the Allopathic practice, I do not denounce its practitioners as men destitute of good principle, intelligence, or philanthropy. I wish to point to the mischief caused by adhering to a code of practice which modern discoveries have shown has no foundation in truth. No class of men perform more services gratuitously than medical men. I do not know any who have to earn a living by their labour who do so much.

The inconsistencies of some cold-water disciples tend greatly to prejudice medical men against the system: medical men well know that in cases of great debility, and in consumptive cases especially, exciting the skin, by frequent ablutions, will stimulate for a time, but the reaction leaving the body prostrate. In all inflammatory or very weak subjects, we are very cautious how we apply stimulating treatment or much ablution to the whole body; indeed, we often get patients far on in recovery before we give them what would be considered a bath, and a whole immersion, never.

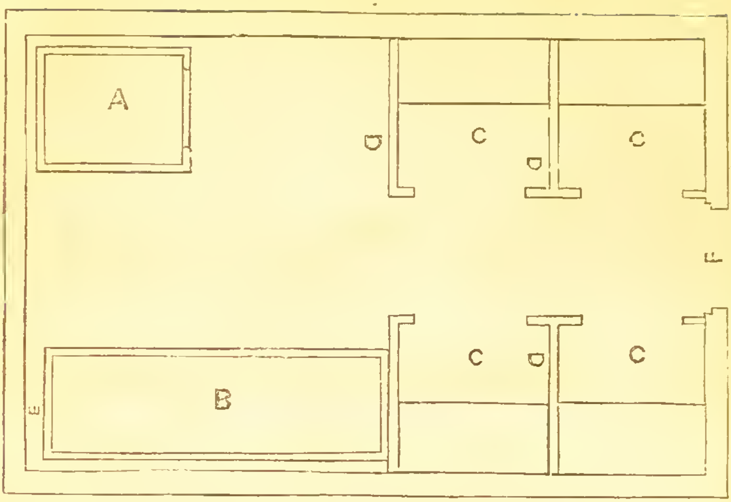
Time will prove the truth of the Hydropathic principles of practice; and I cannot doubt educated and scientific men, as the medical profession generally are, will adopt true principles, if the public will allow them to break into their superstitious belief in the efficacy of physic, blistering, &c.

JOHN SMEDLEY.

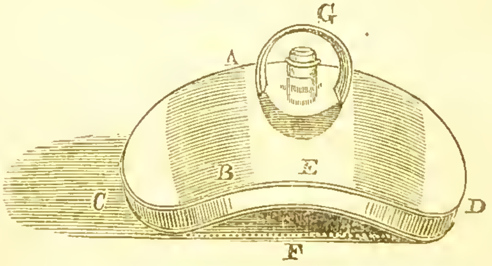
LEA MILLS, MATLOCK,
July 22, 1858.

Home Treatment.—I am often requested to give directions for home treatment. I can only give general directions, and for such operations that can be readily practised where there is but little time to spare, or few conveniences. For persons in ordinary health, little time and very simple apparatus will suffice. A mackintosh sheet, a sitz, as at pages 48 and 49, a head bath, foment can and pads, sponge, foot bath, thick cotton packing sheet, and drying sheets, sitz bath blanket. Spread mackintosh sheet on floor, put the sitz bath upon it, with water in it. On rising, hold the head over the bath, and with the common West India or honeycomb sponge, sponge the head and face well and quick; then sit in the bath, with the feet out, and sponge the body and squeeze spongefuls of water over the shoulders; then stand in the sitz, and sponge the legs, and squeeze more spongefuls of water over the shoulders and spine, and then dry the body with a linen or bump cotton sheet, and not with a towel. The sheet keeps the animal heat in. The less the body is exposed to the air, the better. In winter, after sponging the head, a dripping sheet is safer and more efficacious. Stand on the mackintosh sheet, dip the sheet in the water, hold it up a few seconds, to let the bulk of the water drain into the sitz; then put it on in the form of a cloak and rub well, getting the hands out, and rub the body and legs for two or three minutes. It will become warm immediately. After a good rubbing, put on dry sheet, and dry well, especially the arm-pits, and rub the chest well; then dress immediately; and if in winter or cold weather, or delicate, take care not to remain long partly dressed, or the animal heat will evaporate, and vitality be lost. Have a good thick dressing-gown. Much mischief is caused by not dressing immediately, and by wearing slippers, which in winter expose the feet to cold. Attention to these minutiæ is indispensable if the good effects of the bath are to be enjoyed. I find it useful to sit in the sitz bath for four or five minutes on rising, before the wash; then a dripping sheet after sponging the head—and two or three times per week, at least, the body should be well soaped over with common yellow soap; this is best done with a quilted flannel pad, about eight inches square, four thicknesses, and use hot water for soaping, then cold sponge over. I seldom take any bath in the middle of the day, from want of time: but when opportunity occurs, a cold sitz and foot bath is refreshing, and occasionally a cold or tepid sheet. At bed-time a cold sitz five minutes, covered with sitz bath blanket; a head-bath is also highly useful at bed-time. A hot soaping and washing sitz, No. 99, once or twice a week, at bed-time, or 35½, is refreshing; or a vapour bath, No. 51, and soaping. This bath may be managed with some hot water in a can, and put into it a piece of hot iron or hot brick, and let the patient sit on a chair with blankets round, putting the can under the chair, or by the portable steam bath, as given in this book. We have a mackintosh petticoat for this purpose, for home use, and it serves also for spirit lamp. Short steam baths, and cold sheet, or cold sponging after, are not relaxing, but the contrary. A spirit lamp is a very beneficial bath, and may be taken without any risk, and even by delicate persons, except in heart disease, or determination of blood to the head; the spirit lamp fetches out the secretions which the steam bath will not. After fatigue, a slight steam bath, or if cold weather, No. 98, or 35½, is good. Wet packs I never take, except in case of stomach derangement, or cold, and then No. 38 or 46, for 1¼ hour, always effectually relieves me, and restores the appetite; a cold sheet or cold shallow or cold sponge over must of course be taken after pack or steamer or spirit lamps; Nos. 76 and 77, useful; No. 164 or 163½, and 172; No. 177, if chest affected; or 181, Nos. 154, 155, useful and safe for most cases. The bath list will give any person a pretty good idea of suitable baths, and, by a little practice, the most beneficial will soon be ascertained. No baths, however, will keep persons in health without rigid attention to clothing, diet, and habits of life as laid down in this work; and abstinence from all stimulants, tobacco, pastry, &c. Delicate persons will find in this work, how to modify these applications to suit their cases. If the chest is affected, 71 is very good before drying after a bath, and if the weather is at all cold, they should not use cold water; or if the chest is affected, never use quite cold baths; 19, 113, 72, 73½ good; Nos. 68 and 65, good, and 45, also 50 and 107. In stomach and liver affections, in addition to the ordinary treatment, Nos. 50, 28, 73, and 174 or 175 sprinkled with hot water, and worn on the part night and day, also 90. With these general directions, and the very full information in other parts of this work, any one, with a little patience and attention, may get a good knowledge how to make the most of their natural powers of mind and body. Patients, on leaving the Establishment, should not wear the wet body bandage for weeks and months together without advice; it may be worn with great advantage a few days or a week at a time when the stomach is out of order; or when a person has a great deal of fatigue to go through, it will then be found useful worn during the day, and with a flannel wrapper over it in the night. 204 often; 130 two or three times per week, any time of day or night.

DURATION OF LIFE IN EUROPE. — The *Clinique Européenne*, published by Dr. Kraus, in an article on this important subject, states that before 1789 Duvillard calculated that out of 100 individuals 50 only reached the age of 20. From 1823 to 1831 according to Blennyme's observations, the proportion was 69 per cent. According to Demonferrand, 7 individuals out of 100 reach the age of 80, 2 only the age of 85, and 1 that of 89; while out of a million only 640 die within 90 and 99. Mathieu reduces the 640 to 491, and finds that out of that number only 9 reach the age of 97, and only 4 that of 99. According to Duvillard and Demonferrand, only two out of 10,000 reach the age of 100; but in this respect there are some privileged places: thus, at Carlisle in Cumberland, 9 out of 10,000 attain that age; while at Paris, scarcely a year passes without some person dying 100 years old or upwards. Benoiston de Chateauneuf calculating upon 15 millions of individuals, finds that out of a hundred, only 44 reach the age of 30; 23 that of 60; 15 that of 70; 4½ that of 80, and eleven-sixteenths that of 90. The average duration of life is now about 39 years and 8 months; 20 years ago it was only 36; in 1817 it did not exceed 31¼; before 1789 it was only 28¾; and M. Villerme shows that at Paris in the 14th century, it was not more than 17 years; in the 17 century 26, and the 18th, 32. In France there is only 1 septuagenarian for 33 individuals, 1 octogenarian in 160, and 1 nonogenarian in 1,900. At Geneva, the average of human life in the 16th century was 18 years and 5 months; in the 17th, 23 years and 4 months, and from 1815 to 1826 it was 38 years and 10 months. In England, the average in 1840 was 38 years; in France, 36½; at Hanover, 35 and four months; in Schleswig Holstein, 34 years and 7 months; in Holland, 34 years; at Naples, 34 years and 7 months; in Prussia, 30 years and 10 months; in Wurtemberg, 30 years; in Saxony, 29 years. These facts show the average duration of life in Europe as constantly increasing.



Plan of one of the Bath-rooms for my Free Hospital, and in which many hundreds have been cured or relieved. A, is a steam box; B, is a wood shallow; C, are dressing-boxes; D, partitions with boards six feet high—doors are unnecessary; F, entrance; over the shallow bath; B, is a douche In my house, for private use, I have a bath-room; simply a bath, as at page 51, with hot and cold water-pipes into it. In this may be had hot or cold bath, or douche, and next to it is a wood box, eight feet by six, and six inches deep, lined with zinc; on the zinc is a wood grating, and an outlet from the box for water to pass off; standing on this grating, a dripping sheet or running sitz can be had with comfort; a bed for packing in the same room makes all complete. In this room numbers of our friends have been cured or relieved or refreshed after weary travel.



HALF CHEST FOMENT CAN

One inch thick; A to B, 9½; C to D, 13½; E to F, 3; G, plug.

ERRATA FOR FOURTH EDITION, "PRACTICAL HYDROPATHY."

PAGE.

235. Soap blanket article, leave out the words "Forenoon, afternoon, and bed time; also, if not too fatigued, 45."

342. Read "220" instead of "221" at end of article on sprains.

344. Read "sips" for "dips."

348. Read "pad" for "pan," Case I.

393. "Not water can" should be "hot water can."

396. Incipient consumption, read "$13\frac{1}{2}$ oftenest" instead of "$13\frac{3}{4}$ oftenest;" "or 156" should follow "143;" "156 or $153\frac{1}{2}$" should be "153 or $153\frac{1}{2}$;" and the semicolon after 68 should be left out.

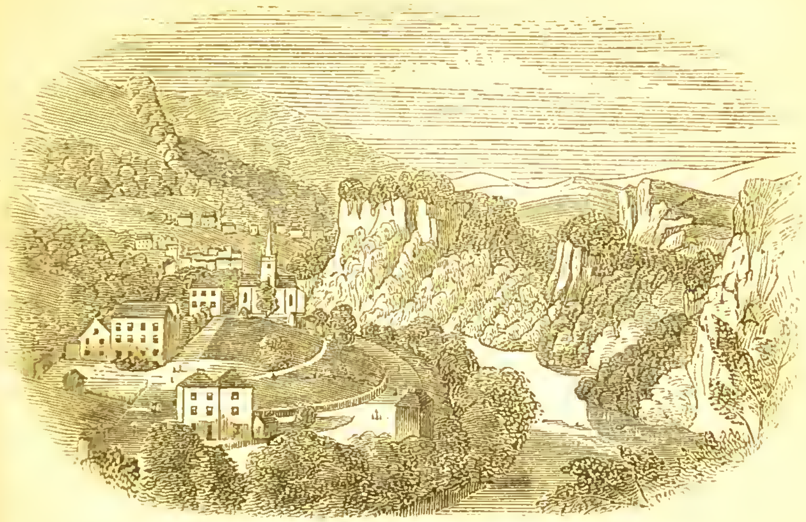
397. "Prostate" should be "prostrate," and the word "gland" should follow "prostrate."

492. Bath list, read "2nd and 3rd edition;" and in No. $44\frac{1}{2}$ the comma should not be in after the word "after."

494. No. 111, a comma should be inserted after the word "gentle."

496. No. 222, soap blanket, say page 235; and in No. 223, read "bowel pack, page 342," instead of "local steaming."

499. "192 to hand" erase in crisis leg treatment, and read "draft" for "draught.'



MATLOCK BATH, FROM THE WILD CAT TOR.

PREFACE.

HAVING, about ten years ago, printed (mostly for gratuitous distribution) an edition of 30,000 of a pamphlet on "Hydropathy, and its Application to the Cure and Prevention of Disease," I have frequently since been asked to publish another edition, giving the improved methods discovered and the experience we have had in the treatment of the many hundreds of cases which have passed through our hands, since that pamphlet was published I have long been desirous of doing this, but the incessant calls upon my time have put it out of my power, and now I can only accomplish my work by using that time which should be allowed to the repose of the body. The many very gratifying testimonies which I have received, both from this country and from other parts of the world, to the usefulness of my former pamphlet, and the valuable improvements we have been enabled to make in the application of Hydropathic treatment, have induced me, now that we have removed to our summer retreat, at Riber Hall, on Riber Hill, within view of the Hydropathic Establishment at Matlock Bank, to devote some of the early hours of the morning in endeavouring, by God's guidance, to make this pamphlet more generally useful Here—where the sun at this season has risen high in the heavens at five o'clock, and the chorus of the birds has commenced still earlier,—where there is a very extensive and beautifully-varied landscape of mountain, valley, and wood,—there is every inducement to throw off drowsy feelings, and rise to work for the glory of God, and the benefit of mankind. Yet sometimes, even in this charming spot, melancholy thoughts will cross the mind, especially when I reflect that many of the former inhabitants of this ancient and beautiful Hall may not have been wise, in the day of their pilgrimage, in securing the salvation of their immortal souls, by being "born again of water and the Spirit," without which none who have heard the Gospel tidings, the Scriptures say, shall enter the kingdom of heaven. Should there have been such, I sometimes think, when viewing the grand panorama of mountains around, how dreadful must be their remorse and self-reproach now they have discovered that they might have had, by a life of faith and obedience, the blessings of this life and the fruition of that which is eternal; for all the treasures of earth, and all its beauties and its pleasures, are but shadows of happiness in comparison with the great realities to be enjoyed in the regions of the blest. May such thoughts of such possibilities quicken the living to a lively sense of the realities of the same. Here also is the site of a Druidical temple, the remains of which, standing on the summit of the hill overlooking Darley Dale, were, by barbarous hands, removed but a few years since. It was, indeed, a commanding spot for such a purpose. The mind is led back to the time (probably more than two thousand years ago) when the inhabitants of the surrounding district, far and near, might be seen on the first day of November ascending the steep mountain side from the surrounding district, bringing their offerings to the priests, and carrying back the sacred fire, to relight their family hearths, which had all been extinguished by the priests' command the evening before; and no doubt also often to witness human sacrifices. This worship was put an end to by the Romans, who came into this country B.C. 55; and who, on this hill, in after-times, made large fires, when the south wind blew, not for sacrifices, but to smelt the lead ore so abundantly found in this locality.

Very frequently my patients have requested me to print my personal experience of Hydropathy, and the reasons which induced me to have a Hydropathic Establishment. I promised to do that when I brought my new pamphlet out, and, at the risk of incurring criticism, I now perform my promise.

It may seem to some persons presumptuous in me, having had no regular medical education, to write on the curative principles of any treatment; but very gratifying success of our efforts, however, for the benefit of our fellow-creatures, has emboldened me to go on with my work. We may truly say, we have seen so many hundreds restored or relieved, without any serious errors, that we cannot doubt we are in the path God designs us to pursue. Our time, health, and strength, and all the means of a not inconsiderable property, are by us willingly, and even thankfully, devoted to our work, with a single eye to live to the glory of God and for the welfare of mankind. My wish is to encourage others to work and stand by the true principles of the Gospel, and leave the result to God, without any fear of the consequences.

After devoting many years to a manufacturing business, and having accumulated more than sufficient for ordinary wants, it was my intention to manage my business principally by deputy, and retiring from it to see foreign countries, making England occasionally my home. The idea of repose and leisure, after labour which few, in my circle, have gone through, was the bright time I had in anticipation viewed with pleasure; and many a dark fatiguing day has that pleasant prospect helped to cheer A regular attendant at the Established Church and the sacrament of the Lord's supper, on terms of close intimacy with those ministers and such persons as had the reputation of being evangelical in their doctrine and practice, self-satisfied with obeying the outward forms of religion, and having the reputation of being both religious and charitable, I believed I was quite justified in looking forward to enjoy the fruits of my labour in ease and self-gratification. "Man proposes, and God disposes." We took a journey through France, Germany, and Switzerland; and on our return I was seized with typhus fever. The great varieties of temperature I had gone through, the fatigue, and more than all, the unwholesome food, and worse, the wine and malaria met with in some parts, had caused that fever which brought me to the brink of the grave. My doctor visited me on my arrival home; said I was in a bad state; gave me medicines, and told me a short time would develope my complaint, which indeed that short time soon did. Instead of our soothing wet-sheet envelope, to relieve the parched hot skin, I had only an aggravation in the shape of drugs. Soon the fever rose to madness and delirium; I entreated the doctor to give me something to cool my parched mouth, but all his accumulated knowledge of the London Pharmacopœia, with his certificate of qualification for the treatment of disease, given to him by the examiners of Surgeons' and Apothecaries' Halls, availed not for my relief: the overruling hand of God, and a healthy constitution, carried me through that fiery ordeal. Once the servant bathing my arms in cold water, I exclaimed, "What a relief!" It was the only agreeable relief I experienced; but of course only being done locally, it had no control over the fever, which was burning throughout my whole body. I was exhorted to look to Christ for the repose of my mind. I replied, I had no hope. My time of trial was come, and I found no witness in my own heart that I had ever been anything but a formal, professing Christian. I soon became insensible to all outward and bodily sensations; but my mind was often exquisitely alive to the whole course of my past life. I saw my character clearly, and it was that of a hypocrite. I believed I was shut out from the presence of God for ever; and felt the justice of my doom. God mercifully brought me back to outward consciousness, but I was long in arriving even at a low state of convalescence. My mind, however, was fully awakened to the awful folly of living for the gratifications of this life; but how to find peace, I saw not.

In a very few months after, being somewhat convalescent, I, with my wife, left home to seek for repose of mind in travel and change of scene. Some good, sincere Christian workmen in my employ pointed out to me the simple means of gaining peace; I tried it, and failed, because I was yet unacquainted with my own unchanged heart. There was yet disappointed ambition, and love of this world's good opinion, ruling in it. I found it was indeed a strong man armed keeping the house, and holding me in an iron cage of misery. Travel again brought no relief; and in a condition hopeless of life, I was advised to go to a Hydropathic Establishment, which my state of desperation only would have induced me to try. There, in November, worn as I was to a skeleton, and distracted in mind, the bitter cold-water treatment aggravated my sufferings at first considerably; had I but commenced with our *mild* system instead until the body had somewhat recovered its tone, I should have been saved much unnecessary suffering. I had not slept above an hour or so at once for months. However, after a few weeks at the establishment, I slept pretty well, I got tolerably good functionary action of the stomach, &c., and after nine weeks returned home. Here, however, old recollections soon threw me down again, I had not yet learned to count all things but loss for the excellency of the knowledge of Christ. In nine months I returned again to the Water Establishment for three months, and regained bodily health, but no relief to my mind. We set out on a tour to Cheltenham, the coast of Devonshire; then to Dover; crossed over to France; came back to England; returned to Malvern, and thence to Cheltenham, where I took No. 11, Suffolk-square, for the winter. I purchased the estate of Rose Hill, near Pitville, then the residence of Admiral King. Shortly after this, I found peace in believing. I had been labouring a good deal in visiting the poor and schools, and practising self-denial in those things I formerly rejoiced in; determining to seek for happiness in the favour of God, through the merits of my Redeemer, and knocking in humble sincerity, the door was at length opened to me. I entered the fold of the great Shepherd, and experienced unbounded joy and confidence. My wife, I was thankful indeed to find, heartily reciprocated my feelings. We then determined to return amongst our work-people, and try to live that life of usefulness God had so graciously laid out for us, but which I had formerly neglected to realise for the vanities and unsatisfying things of this world. I immediately went by London to Ben Rhydding, near Leeds, purposely to kneel down in the room in which I had suffered so much from bodily ailment and despair of mind, to thank God for all his goodness to me, and to dedicate myself and all I possessed to His service.

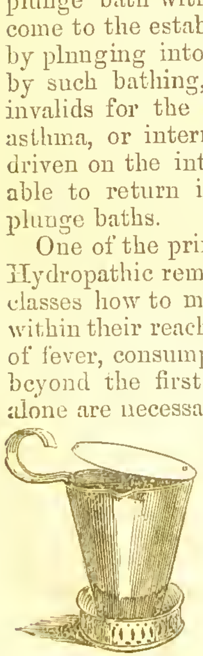
I returned to Lea Bridge (seventy miles), and sat up part of the same night burning my foolish ballads and light books, upon which even clergymen had with me often wasted precious time. I locked up my extravagant plate, ornaments, equipage, &c., until I could give them away or sell them for the benefit of religious societies, which I did shortly after. I then brought my wife from Cheltenham, and we commenced our new and better work. Soon, however, we found that we had crosses to take up, when we would no longer comply with the customs of our former circle, in giving or attending dinner or evening parties, and in keeping our house exclusive for a certain class. We found instead ample consolation in the peace within, and in the communion of humble and sincere Christians. I built six chapels and two school-rooms in different parts of the country, some, where I had work-people. I assisted many poor societies, and worshipped with our own people in one of the chapels I had built here, imposing nothing but the simple word of God on the congregation. It is now about seven years since we embarked on this course, and we have found every year to bring more solid peace and joy; and we know it will be thus with us until God shall take us to serve him in a brighter sphere.

On returning home, I took in a few men, upon whom to try the Hydropathic remedies, which proved successful; and many more making application, I made a place for the free board, lodging, and baths of a certain number of males and females: and hundreds since have here found restoration to health of body, and peace of mind, through the renewal of the Spirit. Persons in our own station then applied for advice, seeing such wonderful effects being produced, sometimes on their own servants. We did not know where to recommend them to go, as we had little confidence in the mode of treatment pursued at some establishments, which is often indeed the "cold water" practice. Some could not afford the expense (which at all the principal establishments is about £18 for the first month); so we made our house a free hospital, until we found we could not afford room enough. I then bought a small house at Matlock Bank for six patients, board, lodgings, and treatment at 3s. per day. Uniform success in the treatment soon brought more; the place was enlarged. Soon again we had to refuse applicants; and thus has it grown until we have had one hundred and ten at one time under treatment. Although I have not had a regular medical education, human physiology has long been a pursuit of much interest to me, and I now find the benefit of my early studies of these subjects. The feeling of responsibility, from the great number who have been at our establishment and the free hospitals, has also induced me to labour hard, and spare no expense, in the acquirement of physiological knowledge;

and the actual practice, in seeing the application of Hydropathic treatment to so many hundreds during the last six years, has given us confidence in our plan of treatment, from the great success in so many cases of persons who had tried medicine and even Hydropathy before, without good effect. Our system of mild treatment, with the application of bandages, not used in the same way elsewhere, and some newly invented baths, have gained such celebrity, that we are now compelled to limit our admissions. I could refer to physicians, surgeons, homœopathic practitioners, clergyman, dissenting ministers, military and naval officers, merchants, manufacturers, &c., from whom I have often received testimony, acknowledging the benefits derived from our mild practice. In the case of females especially, this treatment has done wonders.

The charge at the establishment is fixed with an intention to make it neither a source of pecuniary emolument nor of loss. A large sum of money has now been invested; and the baths are models for Hydropathic Establishments or Public Baths, and I am very desirous of calling the attention of the patrons of the latter to their superiority over the ordinarily-constructed baths, which not unfrequently cause irreparable injury to the body. No person can use a plunge bath without risk. We could refer to patients who have come to the establishment for relief, whose maladies have been caused by plunging into a cold bath, or into the sea. Many escape injury by such bathing, but none practise it without the risk of being invalids for the rest of their lives, from congestion of the brain, asthma, or internal tumours, caused by the blood being suddenly driven on the internal organs and certain weak parts which are not able to return it. Females, especially, are liable to danger from plunge baths.

One of the principal objects I have in view in this work is to teach Hydropathic remedies for self-application, and to show the labouring classes how to manage many of the processes by the simple means within their reach, which, if acted upon, would often stay the progress of fever, consumption, and inflammation, or prevent their proceeding beyond the first symptoms. Resolution, and not sparing trouble, alone are necessary.



5¾ in. whole height.
5½ wide in top.
4 in bottom of stand.
To hold a quart.

ETNA, for heating cocoa or tea, very useful. On rising, put a full dessert-spoonful of rectified spirit of naphtha—or what is better, methylated spirits of wine—into the channel round the bottom of the can; set it on fire with a match, having previously put into the can the liquid to be heated. Cocoa stewed from nibs is best; never buy ground cocoa of any kind. Heat them in the oven an hour or two, then stew them in water three or four hours; as much may be done as will last two or three days. The methylated spirits of wine is about 4s. per gallon, and is best in a half-pint glass bottle.

MATLOCK HIGH TOR.

HANDBOOK OF HYDROPATHY.

DIVISION I.

THE HUMAN BODY; ITS STRUCTURE AND FUNCTIONS.

The limited space I shall take in this book will not allow me to quote the standard works on physiology to the extent I wish. I shall, however, endeavour to give ordinary inquirers a pretty general idea of the subject of which I treat, and add a list of works for those who wish to enter more minutely into the study of these matters.

Having no professional character at stake, as I have not "qualified" at Surgeons' or Apothecaries' Hall, I can make use of terms that otherwise would expose me to ridicule. There is in this an advantage to my readers, unlearned in the scientific language of the medical schools, as it enables me to speak in terms they will understand.

We read in God's book, the Bible, that man's body was made out of the dust of the ground, and we find in this earthy compound from six to seven-tenths of gas and water, the remainder silica or flint and salts; so that in the course of a few years after the death of the body, there is nothing left but a small quantity of dust. "Then shall the dust return to the earth as it was; and the spirit shall return unto God who gave it." The gas and water having risen into the atmosphere come down in rain and moisture, and being absorbed by vegetation again enter into the composition of human bodies, through the vegetable products of the earth. The very bodies we now occupy may, and most certainly do, contain some portion of the very materials that have formerly constituted other human bodies, as nothing here can be annihilated until the final destruction of all things in and on the earth.

The spirit or immortal life, however, was, we read, breathed into man's nostrils by the Almighty Creator, "*and man became a living soul*," to live in, and out of the body for ever. We have here commenced an existence which is but the dim shadowing of the glorious state that is to follow, when this earthly tenement of the spirit is changed for one "incorruptible, undefiled, and that fadeth not away." This soul, or spirit, which dwells in and actuates our earthly frame, performs its movements by the nervous system, which may be aptly termed an electric telegraph apparatus.

The nerves of the special senses, viz. touch, taste, smell, vision, and hearing; the nerves of swallowing and breathing; with the nerves of motion and sensation, are the three highest orders of the nerves, and are called the spinal cerebral. The fourth order consists of the nerves of the organic or nutritive system.

In the spinal marrow the nerves of motion and sensation take their rise, and run together to every part of the frame where motion and sensation exist. A motive nerve will not act, unless accompanied by a nerve of sensation, which performs the office of stimulating that nerve, or conveying its message for action. A continuation of the spinal marrow, just within the skull, is called the *medulla oblongata*, from which, and a little farther in the base of the brain, the nerves of the special senses of sight, smell, taste, swallowing, breathing, and hearing, have their origin; these nerves, or telegraph wires, proceed to the organs to which they are made to give action. All the nerves of motion, sensation, and special sense are connected with, and ramify into the *cerebrum*, or upper part of the brain; this is the supposed battery where the nervous energy, or electricity, is concentrated for the mind to apply or use as it is wanted: just in the same manner as the battery is kept charged for use at the electric telegraph station.

The *cerebellum* at the back of the skull is considered to be more especially the battery for some of the nerves of special sense. These three orders of nerves of motion, sensation, and special sense are called the true spinal *cerebral* system. They are of the highest order; and their office is entirely confined to the operation of the mind over the body, except in involuntary acts. Just as these nerves, or telegraph wires, are kept in a healthy state depends the power of the soul to give expression to its will. Precisely as the cerebral nerves of an infant on its entry into the world are developed, so is the power of the soul within to give expression to the will. If, on the contrary, the cerebral nerves be defective, the infant grows up with what is called a weak intellect, or idiotic. But those terms are erroneous, as concerning the power of the spirit; it is not the immaterial spirit that is deficient, but simply the material of the telegraphic battery or its wires. The soul can never know any growth or diminution, naturally speaking, in its powers; it becomes conscious of new scenes and new ideas; but the powers to receive those ideas are only limited in this state of existence by the perfectness, or otherwise, of the nerves, the medium of communication with external objects. The soul is a divine emanation, and possesses powers only in a much lower degree to those of its Divine Creator. The deep significance of the expressions of the Bible—"And God said, Let us make man in our image,"—"So God created man in his *own* image,"—"And breathed into his nostrils the breath of life," are little thought of or rightly appreciated. With this breath God has deputed wonderful powers to his creatures. How wonderfully man is endowed with the power of putting motion into inanimate matter—into steam engines, for instance, and the great variety of machinery! Then how extensive and illimitable is the range of man's mind, and how far it can soar out of its body, beyond the limits of this globe on which we dwell! It can pursue its course into regions which have not yet been seen, but which it is often compassing in the spirit of thought. When the cerebral nerves are come to maturity in the full-grown person, then we see the soul acting with the full powers which this state of existence permits. The sole difference we see in the mental powers of individuals is owing to the difference and unequal development in the cerebral nerves alone. Thus we find persons, and even families, having a fine development of the head generally possessing great superiority in mental powers. On the contrary, we shall find those individuals with the low, small retreating forehead to be as much deficient in their mental powers; nor will any amount of labour bestowed upon their mental culture ever succeed in extending or enlarging those powers in any great degree. Again, we shall see some individuals with a large development of the upper part of the forehead and skull, who are by no means clever, yea, sometimes sadly deficient in intellect. These exceptions proceed from some defect in the nervous centres of the base of the brain, which, from the preponderating power given by the large development to the battery of that telegraph of the human frame, causes such individuals to act on impulse without judgment. On the other hand, we shall find others with the small, narrow, low forehead, often evincing great acuteness in business, and sometimes not wanting even good ideas. Here the centres in the base of the brain are well developed; but, for want of a proportionate battery in the cerebrum of such persons to give healthy, sound impulse, they are generally slow to act, and deficient in energy to put their designs into execution.

As old age comes on, the cerebral nerves, with all the organs, begin to lose their power; and we see the soul, which acted with so much power when the frame was in full vigour, again return to the feeble mental efforts of childhood, simply from decay of the matter of the nerves. I shall notice, in connexion with the next and fourth division of nerves, the injury done to children by too early education, and the over-working of the brain by studious or over-anxious men of business.

I wish, however, not to be misunderstood in these statements with respect to the powers of the soul as being limited by the perfect or imperfect structure of the nervous system in the brain. The Almighty and Beneficent Creator evidently has not made man's happiness, in this or a future state, to depend on the conformation of brain inherited from his progenitors. Such an idea of that great Being's Omnipotence would ill accord with the Christian's idea of his infinite goodness. That the power to acquire knowledge, and to act with vigour, sound judgment, and great foresight, is alone possessed by those who have a harmonious and fully developed brain, is past all controversial doubt; and so is also the fact, that the highest degrees of temporal and spiritual happiness are by no means unfrequently found to be possessed by those who have little capabilities for great acquirements in the knowledge of this world. God, we often see, takes the weak things of the world to confound the wisdom of the wise, simply because many persons by the world considered weak, and of little account as to knowledge, have applied for and received the teaching of the Holy Spirit, making them wise unto salvation, and giving them the peace which passeth all understanding. And although they are conscious they do not possess high powers of making great progress of investigation in secular learning and scientific persuits, yet they are perfectly content and happy, knowing that God appoints some, by the gift of great talents, to fill certain positions in life, while He makes others conscious that their want of these high intellectual powers is no detriment to their happiness; and that soon all who have greater or less talents must give an account of the use made of those talents to a Master who will reward His faithful servants, though ungifted and humble, with a crown of life which shall never fade away. And so our Almighty Creator shows to His creatures that, in all His dispensations, their consummate happiness is His design and intention. For to all "the Spirit and the bride say, Come. And let him that heareth say, Come. And let him that is athirst come. And whosoever will, let him take the water of life freely,"* that when their task on earth is accomplished, they may realize the apostle Paul's beautiful exposition of the nature of the body and spirit—"So also is the resurrection of the dead. It is sown in corruption; it is raised in incorruption: it is sown in dishonour; it is raised in glory: it is sown in weakness; it is raised in power: it is sown a natural body; it is raised a spiritual body. There is a natural body, and there is a spiritual body. As is the earthy, such are they also that are earthy; and as is the heavenly, such are they also that are heavenly. And as we have borne the image of the earthy, we shall also bear the image of the heavenly."*

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* Rev. xxii. 17.

Next, as to the structure of the spinal cerebral nerves. It will be seen by Sir Charles Bell's Work on the Nervous System, and likewise by Kirke and White, Marshall Hall, and others, that these telegraph wires are tubes, supposed to be filled with a fluid. When this fluid or its delicate tube or outer sheathing becomes vitiated or injured by vicious living, improper diet, private excesses, but most of all by the use of intoxicating drink, tobacco, opium, &c., the mind, desiring to act, in attempting to send its messages by those damaged nerves or telegraph wires, finds no response. A person with sound healthy nerves determines on an action and performs it with ease and decision, and afterwards the nerves remain at rest until again prompted to action by the force of the will, but not so with the poor nervous hypochondriac: the wires repeat again and again the same impressions first made on the nervous centres in the brain, the soul has lost control over the frame, the soul in fact has got a trembling disordered harpsichord, unstrung, and out of tune, and is sometimes so harassed and distressed with unavailing efforts to make it answer to the efforts of the will, that, in despair, it sometimes dashes the whole frame to pieces by a violent death. Without a good knowledge of the nervous system, its structure, functions, and action, no person is justified in undertaking the cure of disease; and it is of the utmost importance to every person to understand, at least, the outlines of his own system, to be enabled to make the utmost use of his intellectual powers, and to enjoy existence with the high privileges and endowments God has given to man, by bringing the body in subjection to the soul, and thus fulfilling the high purpose of his creation, in glorifying the Gracious and Almighty Author of his being. The nerves proceed from their centres in the spinal marrow and the brain, in bundles, enclosed in sheaths; and they strike out of the sheaths to their different destinations, as they come near parts to which they are designed to give life and action. Their numbers are incalculable; as every peripheral point of the frame has its direct and separate set leading to the nervous centres in the brain. They are larger at their origin, and become so fine as they enter the ultimate tissues of the body, that their termination cannot be discovered even with a microscope. There is a beautiful transparent film called the arachnoid membrane, which encloses the spinal marrow, and is continuous over the whole mass of brain; it also lines the sheaths which enclose the nerves, so that the brain, spinal marrow, and nerves are enclosed in one continuous net-work, in the same manner as the mucous membrane lines the mouth, stomach, &c. This membrane is wonderfully fine, and is moistened with serum, and therefore called one of the serous membranes of the body, in contra-distinction to the mucous membranes lining the mouth, stomach, &c. When the blood is too poor by being vitiated with stimulating drinks, the use of tobacco, severe cold, want of good food, or other causes, the serous membrane is short of this lubricating moisture, or serum, and, consequently, the nerves move in dry sheaths. This soon tells upon the limbs in motion, and is one of the principal causes of rheumatic pains. The more exercise a rheumatic subject takes, the more pain he suffers. I know cases in which persons, having been advised to walk their rheumatism off, have brought on such chronic inflammation in these sheaths, and in the sheaths of the muscles, as to utterly destroy their vitality, and render them hopelessly crippled. Entire rest, proper diet, with our natural means of restoring the nutritive powers to action, are the remedies we use in restoration. Blistering and heating lotion applications, by weakening the parts, invariably injure instead of benefiting. Any mode of living which prevents the blood affording a due supply of serum to these sheaths, affects the brain and spinal marrow, as well as the nerves, and is often a cause of loss of power in the brain and spine, and induces paralysis. Irreparable injury is done to both the brain and spinal marrow by this principle not being recognised in the barbarous treatment of spinal complaints by issues, cupping, scarifying, powerful ointments and lotions, which never did nor ever can do anything but ultimate injury.

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* 1 Cor. xv. 42—44, 48, 49.

It is easy to discover when the brain is affected, by a sense of fulness in the head or other uncomfortable symptoms. And immediately it is pronounced congestion of the brain, leeches, blisters, and aperient medicines are prescribed; further weakening and irritating the already distressed nerves; frequently to the ruin of the poor patient.

The idea, that when the head is suffering from a sense of fulness, or irritability, it is only necessary to take some of the fluid out by bleeding, cupping, or blistering, is a mischievous, ignorant, and often fatal error, and often lays the foundation of suffering and incapacity for the rest of life. The originating cause of cerebral irritation will, in almost every instance, be found in the stomach, or some other internal part of the body. I have had severe cases of congestion of the brain, with almost entire unconsciousness; and cases of ordinary determination of blood to the head; and even of apoplexy, with loss of memory, which have been restored simply by derivative treatment of fomentation, sitting baths, mustard foot baths, wet sheet envelope, &c. It is to be hoped that the injurious and unnatural system of bleeding, blistering, and purgative practices will be entirely abandoned for these more rational modes of cure derived from natural principles. In the hundreds of cases, comprising every disease and ailment to which the body is liable, that have come under my care, (many of which had been given up as desperate before coming to my establishment, or free hospitals,) I have never had recourse to bleeding, blisters, or purgatives; and only one person, out of the many hundreds I have had, has died in the establishment; and his death was the result of his own act in taking stimulants unknown to me, and against my most urgent advice. The principle I act upon in the treatment of disease, is to endeavour to get the nutritive powers into healthy action, and thereby replace inert, morbid, diseased, or inflammatory matter in the system by healthy substance, which alone can throw off disease. As it is manifestly impossible to purify vitiated tissue, it must be thrown off and replaced by new, before the body can be at rest.

From this slight sketch of the cerebral spinal nerves, it will be seen what a wonderfully constructed system we possess; and when it is noticed that every voluntary act must first originate in the brain, and that the message has to travel over a considerable extent of the telegraph wire, or nerve, before the act is performed, (for the act appears simultaneous with the will,) the speed at which the message must travel passes all calculation. One more observation on these motion nerves before I proceed to the fourth order of organic or nerves of nutrition. From want of a due appreciation of the action and nature of these nerves, and their arachnoid covering or sheaths, great and irreparable injuries are often done to the frame by practitioners of allopathy, and by the merely *cold* water doctors. From the previous observations it will be seen how delicate and sensitive the cerebral spinal nerves are; and no severe shocks can be given to them without risk of permanent injury, or death itself. I am aware, in condemning plunge baths or sea bathing, I am running counter to popular opinion; but faithfulness in the cause of truth is a greater consideration with me than having my statements ridiculed. No one ever uses a plunge bath, or the sea bath, without risk; ninety-nine may escape injury, but the next may be ruined for life. The sudden shock to the nerves, and also driving the blood from the surface of the body on the internal vessels, where there may not be power to bear the shock, or return the blood, if not the cause of immediate injuries, lays the foundation of disease which is often developed a considerable time after. I named this to a London surgeon, who favoured me with a visit to inspect my establishment. He corroborated my opinion at once, and said at that time he had an eminent solicitor under his care, who, in going last autumn to the seaside for rest, plunged into the sea as usual with visitors; which caused congestion of the brain, and a severe and dangerous illness, from which he is now a good deal recovered; but the effect will be felt for the remainder of life. In the case also of a lady I have had in my establishment, who went well, and in health, into the sea, the shock produced congestion in the lungs and chest. For this, leeches and blisters were applied by her doctor, which, of course, still further lowered the vital powers of reaction, and the result was chronic asthma, of a most distressing kind, from which the lady is now a complete invalid, and a great sufferer, without hope of cure. In the case of another lady, who, in hot weather, went into a cold plunge bath, during a visit to a friend, internal congestion was the result; and an abscess formed which destroyed her.

Errors are also of frequent occurrence by the reflex action of the nerves not being understood. A lady has recently been at my establishment, who went under a celebrated professor of physic in Edinburgh, for pain in the lower part of the spine; this, he told her, was merely rheumatism, and would soon be cured; he ordered rather severe application to the part, and in a fortnight the lady was laid prostrate in bed. The cause of the pain was irregularity in an internal part, which is supplied with nerves from that part of the spinal marrow. The severe applications to the poor suffering nerves of the spine only aggravated the internal disorder. She was greatly restored by a long course of mild hydropathic treatment, but I fear will sometimes during life feel the effects of the barbarous "professional" treatment of the learned professor. I have had not a few cases of what of what have been termed spinal disease in females, and for which blisters and setons have been applied to the spine, to the invariable injury of the patient, the cause of which I have always found to be internal irregularity. In some cases, the use of the legs has been almost lost, as if by paralysis, but has been, to a great extent, restored by our natural means of cure. I could give many cases of the same nature, for they are, I regret to say, of frequent occurrence in our experience. The injury done, especially to females, by bleeding, blistering, injections, caustic, and the use of certain instruments, ruins many a good constitution, and renders the patient an invalid for life.

Sir Charles Bell and Dr Marshall Hall, in their celebrated works, and other writers upon the subject, show that pains in one part of the body may have their origin in remote parts: diseased parts communicating pain by the sympathetic nervous telegraph wires to different parts of the frame. Nothing but a restoration of the nutritive powers can succeed in giving relief in such cases.

Adhesion of the arachnoid membrane to the substance it covers in the brain, spinal marrow, and nerves, is a consequence of inflammatory action, and is often a mysterious cause of suffering, which it is impossible correctly to ascertain during life, through the reflex action of the nervous system causing extraordinary pains in parts of the body remote from the point of disease. The late Dr. Logan, of Leeds, suffered excruciating pains many years, especially in the legs, which he had laid on cushions before him, covered with basket-work, lest anything should accidentally brush over them; so acute was the sensibility. Examination after death showed thickening and adhesion of the arachnoid membrane covering the spinal marrow.

It is one thing to have a scientific knowledge of the frame, and quite another to have a good knowledge how to cure disease. No one can safely be trusted with a ship who has not a scientific knowledge of the laws of navigation. However creditably a man may have passed his examination for a commander, it by no means follows he is able to navigate a ship unless he has had a practical education on board, both in sunshine and in storm. And so it is with the medical profession. A good curative knowledge can only be obtained by practice, after an educational course. This is very strikingly the case with many of the first and most scientific writers and lecturers on the human frame. Their time has been spent in the study of the frame, in all its wondrous complexity; and they have had little opportunities for personal experience in comparison with those who are engaged in practice alone; and, consequently, are sadly at fault, when they prescribe remedies which, from their knowledge of the functions and structure of the body, *ought* to succeed, but, nevertheless, are of no avail, and often only aggravate disease. A striking instance, amongst many I have had, has just come under my notice.—A solicitor in the north of England writes to me as follows:—

Matlock Bank, June 17th, 1857. Dear Sir,—I have great pleasure in writing you an account of my illness, and the remedies I have tried in mitigation of it. I was first struck with paralysis in 1851. Within two or three hours of my first attack, I sent for my usual medical attendant. He shortly called upon me in company with Dr. ——, his subsequent partner. Dr. —— at that time bled me, and subsequently administered a cup to my neck, and afterwards applied a seton to the same. In about two months time I went on a visit to a brother-in-law of mine, a medical man in ———; with him I stayed a month or six weeks; and during that visit I twice went to town in my said brother-in-law's company to consult the celebrated Dr. ——, a physician, said to be great in paralytic cases; he only advised me to take a quantity of blue bill, get a pony to ride on, and to take an enema once every morning. The blue pill soon lowered the system, and made riding unsafe, the enema brought only temporary relief. In 1853, I was again struck whilst attending at the assizes. I then got the assistance of a friend of mine in the neighbourhood for that night, and on my return home I got the assistance of a fresh surgeon, who attended me ever since, till my coming here. He had the assistance of Dr. ——, a gentleman well known in ———, who, among other things, advised me *not* to give up my snuff, (four to five ounces per week,) as that, he said, had killed a Mr. ——, a brother professional of mine. I remain, dear Sir, yours truly,
J. Smedley, Esq. P. T.

The physician referred to is one of the most celebrated discoverers of the nature, action, and reflex action of the nerves; and perhaps no man living is more thoroughly acquainted with the subject. How strange he could prescribe no more effectual remedies! He made little inquiry into the patient's habits; did not prohibit his taking snuff, a habit alone sufficient to induce paralysis; allowed stimulants; and failed in giving the least relief! Another physician advised the continuance of the use of snuff, four to five ounces per week!! The patient came in a deplorable state, unable to retain his urine, with his bowels constipated, and was deaf; all the result of the failure of nervous power, aggravated by the pernicious prescriptions of his doctors. He is now decidedly improving in every respect. No permanent recovery can ever take place unless the nervous energy is restored. All blistering, bleeding, setons, and purgatives tend not to strengthen and restore, but to weaken and irritate. The father of a boy afflicted with curvature and disease of the spine, with loss of the use of both legs, applied to me for advice. He stated his son had been under the care of several medical men, and also in an infirmary, where issues were put in the poor creature's back, with twenty-eight peas; his sufferings became so intense, the father removed him. From the first there could be no hope of restoration, and all the unnatural torture of the nerves only aggravated the misery of the poor lad. How issues, with the twenty-eight peas inserted along the spinal column, with all its delicate membranes and network of nerves, was to restore and give nutrition to the part, is past comprehension: but, in such way, thousands are ruined for life, or destroyed.

THE FOURTH ORDER OF NERVES, commonly termed the nerves of organic life, or nutrition, or ganglionic system. These nerves, by their vis vitæ, or power of life, have entire control over the organs of circulation, nutrition, secretion, absorption, and excretion. They have the same structure as the spinal cerebral nerves, tubular, and filled with fluid; encased in sheaths, and act by their electric powers; and so identical is this property, that the power of one order is lent to or sympathises with the other in cases of emergency. As for instance, when the brain is pressed by mental exercise, the vital power of these nutritive nerves is also called into the assistance of the cerebral system; and if the mental effort be long continued, the proper function of the nutritive nerves is partially suspended, causing what is commonly called indigestion and biliousness, from the liver not acting, and so lowering the power of all the organs of nutrition and circulation. On the contrary, when the mind is not properly exercised, the vital power of the cerebral system is left to add its influence to the nerves of nutrition, and thus often produces a state of obesity, or fatness, with a tendency to apoplexy.

When food is taken into the stomach, it is there dissolved by the action of the gastric juice; but unless the vital power of the large plexus of organic or nutritive nerves in connexion with the stomach be sufficiently strong, the chemical change in the chyme or fluid does not take place; the consequence of which is acidity, followed by fermentation, causing great irritation in the stomach, duodenum, and bowels. The unhealthy matter passes into the bowels, where it is taken up by the absorbents into the blood, and so passes into the tissues of the body, building it up with inert or effete matter, which the body then tries to throw off. If there is power to accomplish this, by boils, rash, shingles, diarrhœa, or other means, the vital organs are kept from injury; but if the vital power is low, the organs cannot resist the surcharge of morbid matter, and the result is inflammation, fever, &c., which often leads to fatal results. How often is premature dissolution the effect of injury done to this beautiful structure, by the spirit of man becoming a prey to the appetites and passions! How often is he suddenly cut off when the brain is surcharged with alcohol, in a fit of drunkenness! or he dies the awful death of a raving madman in a fit of delirium tremens, the effect of the same baneful cause!

A good knowledge of the nature and action of these organic nerves, as well as of the spinal cerebral system, is absolutely necessary to enable the soul to carry out the work it has to perform with comfort and ease. The electricity in these nutritive nerves is the cause of the circulation of the blood; also the absorption by the liver of those materials out of the blood which go to the manufacture of bile or gall. It gives power to the liver to manufacture saccharine and other matters to enrich the blood, the quantity of which materials are materially altered by injuries or other causes affecting some parts of the brain, and undoubtedly often results from that organ being affected by the habits of taking intoxicating drinks to excess. It also assists in forming the red corpuscles which impart that colour to the blood, and gives power to the uriniferous tubes in the kidneys to draw out the urine, with other impurities, from the blood. It gives power to the flesh, bone, &c., to assimilate their materials out of the blood, as the blood circulates through the body. The electricity or vital power of these nerves, commonly called ganglionic or organic, is, in fact, *the life of the body*; and just as this power is in vigour, or otherwise, so is the healthy action of the system. As electricity is the motive power of the will, and is generated in the brain; so the same element exists in these nutritive nerves for the purposes above named. This electrical power, however, is more generally generated in the body, as demonstrated by works on animal magnetism, which show that in the fibrous tissues of the body molecules of magnetic principle exist. An extensive knowledge of this principle in the human body is essential and invaluable in the study of health and disease, as it is in fact the key to the principle by which the bodily powers are to be renovated or kept in health; and it is the only true principle on which to act. All attempts at curing local disease, or preserving health, without taking this principle as a basis, only leads to chance and temporary success, and ignorance of it often to the undermining of the constitution, by attempts to expel maladies by local applications internally or externally. The first point to notice is, how this vis vitæ, or power of life, in the organic or nutritive nerves, is to be kept up to its proper force. This is only to be accomplished by strict obedience to the natural laws framed by the Creator as conditions of health. The high privilege of freewill enjoyed by man above all others of God's creatures is, when under the influence of religion, a source of supreme happiness to him; but by his perversion of this high privilege, in the indulgence of his carnal appetites and passions, he renders that precious gift of his Creator a source of misery and suffering in this world, and eventually of his eternal ruin. When man brings his body into subjection, and is guided in his actions by the all-wise, immutable, beneficent laws laid down in God's word for his happiness, he takes food and drink only for the purpose of enabling him to perform the mission God has appointed him, and brings his body, with its animal desires, into subjection. Just as man governs himself by these laws, so we see him reach the high standard in the position God at first intended him to fill; but, on the contrary, when the soul gives way to the promptings of the appetites and passions, so we see a whole flood of disease and misery let loose on the poor creature which often debases him below the brutes themselves. Comparatively few strike out a course from their own convictions. The customs of society, fear of ridicule, or being thought singular, carry multitudes down the stream against their better judgment; and for which they have to pay by future suffering with those following these customs. Companionship, however, in suffering of this kind, I cannot conceive, affords any consolation.

The habits of life and course of diet followed by society generally are, in many points, diametrically opposed to the laws of health. Breakfast, with toast and butter, strong stimulating coffee, strong tea, especially green, which is well known to be coloured with a highly deleterious ingredient; white bread, when had from the baker's, often contains alum or other pernicious ingredients (which they say they are compelled to put in, to please the public, who will have a white light loaf); with other aliments, such as broiled bacon, salt fish, ham, with mustard and pepper; and not unfrequently have I seen, at commercial hotels, the addition of bitter ale. Then, some take luncheon, or rather a first dinner of animal food, &c., in two or three hours, with wine, ale, or porter; and later in the day, a second and principal dinner, sometimes like the one I describe further on. Others take dinner at one or two o'clock, composed of soup, animal food, with condiments, (without which the indulged palate cannot relish plain food,) pastry, sweets, followed by cheese and uncooked vegetables, in the form of celery and salads, with ale, porter, and wine, and in many cases concluding with a cigar. or pipe of tobacco, and spirits; then at five or six o'clock, tea, with toast and buttered cakes, &c. Animal food and tart again for supper at nine o'clock;

with ale or spirits, cigar, or pipe, by way of finish to the day's work of eating *not to live, but living to eat.* When we compare the nature of the food thus taken with that best adapted to make sound muscle, &c., and to keep up the vis vitæ, or electric power of life; it is no wonder we see the multitude of maladies so general among mankind, debasing the tissues, and affecting the brain.

The Stomach, Liver, Bowels, &c.

The organic, or nutritive nerves are spread throughout the body, but have no common centre, as the cerebral spinal nerves have. The principal plexus, or mass of these nerves, is the stomach, because there the first operation on the dissolved food, or chyme, as it is called, is to be performed: that is, the chemical change is there to be first communicated through the organic nerves. When there is good healthy power in these nerves, the change is perfectly made. The matter passes through the pyloric orifice into the duodenum, a Latin term, signifying twelve; from which word this first bowel, or second stomach, derives its name, being supposed to be generally twelve inches long. Here another important addition is made by the bile conveyed into the duodenum by the gall-duct from the gall-bladder, and also by the addition of the pancreatic fluid brought from the pancreas, or sweetbread, by another duct. The alimentary matter then passes into the small gut, which is supposed, on an average, to be about twenty-eight feet in length; and on its passage through, as will be explained, the principal part of the nutriment is taken up and conveyed into the circulation for the support of the body. The insoluble part, with the fecal secretion drawn out of the blood into the colon, forming what is commonly called the stool or excrement, passes through this colon, or large gut, and is discharged at the anus. The colon, as will be seen by the engraving, rises on the right side, near the groin, where the celiac valve is situated, ascends upward toward the liver, across the top of the bowels, and then descends down the left side, turning and lying on the spine in the lower part of the back, passing downwards to the anus or seat.

The twenty-eight feet of small gut is attached to a fatty membrane, called the mesentery. Under this mass of fat running upwards along the spine, is a main tube, or as it is termed, the thoracic duct, because it rises up to near the throat, on the left side. From the lower part of this tube, or thoracic duct, there are vast numbers of smaller ones which pass into the bowels protected by the mesentery. These, called lacteals, or absorbents, project a short distance into the bowel, where they come in contact with the digested food passing through it, and from whence, by their electric power, they absorb the juice out, and convey it to the thoracic duct, by which it ascends to the front of the left breast, near the top of the shoulder; and there it enters what is called the left subclavian artery. This subclavian artery contains exhausted blood brought round to be renewed. The contents of the thoracic duct are here mixed with this exhausted blood, which then passes downward into the right valve of the heart. This valve opens to receive it, and then, by its muscular power of contraction, forces it into the lungs, where the fluid, which is then of a dusky colour, comes in contact with the air, and imbibes oxygen, which changes it to scarlet, and thus enriched and renewed, it is now fit, as fresh material, for absorption into muscle, bone, &c. The renewed blood now passes into the left side of the heart, and from there it is pumped into the large tubes called arteries. Vast numbers of very minute vessels or tubes, called capillaries, proceed into the flesh from the arteries, and round the bones, and to every part of the frame; where coming in contact, each part, by its vis vitæ, or electrical property, has the power to take out of the blood the material fitted for its peculiar support and structure.

The absorbents before named take up from the bowels, into the thoracic duct out of the digested food, any juices, without choice or selection; these juices have then to be purified, principally by passing through the lungs, liver, kidneys, and a number of other glands.

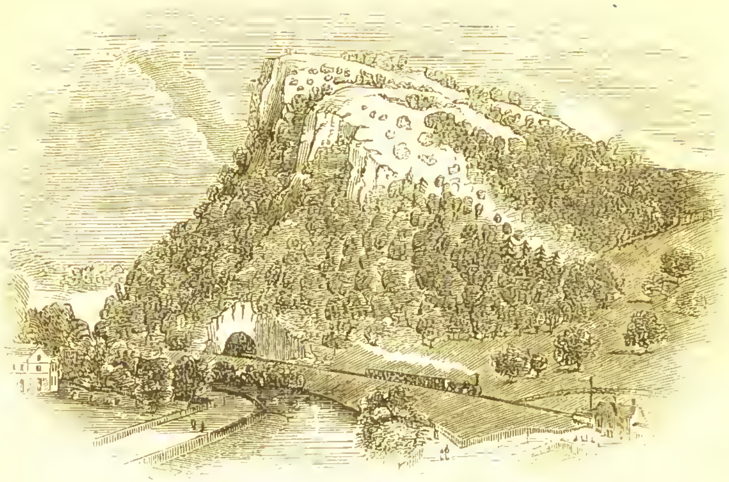
The blood enters the substance of the kidney by arteries, from which, as will be seen in the engraving, small sprig-like branches arise, terminating in a knot of veins called malpighian tubes. A uriniferous tube covers this, and, by its electric power, draws out of the blood, through these knots of vein, the urine, together with phosphate, urea, and other matters not required for nutrition. When these knots of delicate structure become inflamed or diseased, by alcoholic drinks, or other bad matter in the blood, they allow the rich and nutritive parts of the blood to pass with the urine; and soon, as in diabetes, rapid waste of the body takes place.

The liver takes out of the blood by its electrical power, or vis vitæ, the proper material to manufacture into gall; which, when made, is deposited in the gall-bladder, situated between the lobes of the liver, and by the pressure exercised by those lobes upon the gall-bladder, the gall is forced into the duodenum, and is the natural stimulant or purgative acting upon the bowels. If the electrical power of the nutritive nerves is weakened by alcoholic drinks, and the use of tobacco especially (a slow but sure poison,) or by improper food, the bile or gall is not taken out of the blood; it continues to circulate through the body, carrying mischief wherever it comes in contact with these delicate nerves; and if relief is not given, produces jaundice, and other what are termed bilious complaints. When the gall is of a bad quality, irritation of the mucous membrane and nerves of the duodenum is caused, and instead of the bile passing as it ought to do into the bowels, it finds its way upwards into the stomach, and is thrown off by vomiting, or passes downwards, irritating the bowels, and causing diarrhœa, and this is the way many have to pay for the pleasures of the pipe and indulgence at table.

The liver acts also as a nutritive organ, forming sugar out of the exhausted blood, and carrying it into the circulation; and also in forming the red corpuscles which must be present in healthy blood, which is of a light crimson colour. A large amount of impurity in the blood is thrown off by the lungs, as they also draw in oxygen, which, coming in contact with the carbon in the blood, produces combustion of that substance, and so gets rid of impurity. When a person has fetid breath, the blood is in a bad state, and this should always give the alarm to rectify the impurity by proper diet, attention to the skin, &c., before the disease increases, and typhus fever or inflammation result.

On an average one hogshead of blood passes through the heart and lungs every hour, and calculation shows that entire circulation of the quantity contained in the body takes place in from one to two minutes. A power equal to four cwt. is exercised by the lungs in drawing in the air into the bronchial tubes and air cells, and of three cwt. in expelling the air out of the lungs. It is supposed the linings of the bronchial tubes and air cells around which the blood circulates to come in contact with the air in the tubes and cells, pass a surface or area exceeding thirty thousand square inches. Besides the liver, lungs, and kidneys, other organs act as purifiers to the body. The skin, with its three thousand pores to every square inch, throws off from an average-sized person two to three pounds of impure matter every twenty-four hours by insensible perspiration. There are, it is supposed, on an average, twenty-eight miles of these minute corkscrew-like ducts or conduits to let out the perspiration. Then there are as many pores called absorbents, to the minute capillaries, or small blood veins, to give them oxygen, and to cause combustion of innutritious matter. Hence the necessity of breathing pure air, and keeping the skin cleansed of dirt and excretions, which otherwise would be re-absorbed; and also, the necessity of having under garments frequently washed, or they will become charged with this fetid matter, and will restore it back to the system by the absorbents.

The extensive system of lymphatic veins and glands distributed throughout the body absorbs matter, purifies it, and returns the nutritive part into the system, and the rest into some of the channels which carry useless residue away. The glands perform a very important office, and act extensively as chemical laboratories in preparing nutritive matter for assimilation; beyond the fact that they have this power, little is known of their complicated and delicate structure. The wonderful organism of the human frame, taken in all its parts and workings, is altogether past comprehension. It would make this description too complicated to go into all the minute particulars of the structure and working of the various parts of the frame. I give farther on a few engravings and notes, and at the end of the work a list of books which enter into these particulars.



HIGH TOR TUNNEL, MATLOCK.

DIVISION II.

DIET, CLOTHING, AND HABITS OF LIFE.

WITHOUT a firm resolve to conform to the laws of nature in respect to diet, &c., no curative treatment will avail for health or comfort. Thousands, indeed by far the majority, both eat and drink what they are fully aware is not best for their healthy sustenance; and yet persist in such a course, merely to gratify their appetites; thereby bringing upon themselves much suffering, and shortening their lives. Some act thus from a natural taste for such things, and others from a dislike of being thought peculiar in their habits of life. Such are generally complaining of being unwell, and truly they may; and are constantly applying to the doctor for advice and physic, who can do nothing for them but give temporary relief by pills and draughts. The temperate use of plain and wholesome food, cleanliness, and taking proper open air exercise, with that proper denial in abstaining from intoxicating drink, smoking, and other pernicious habits, and a strict government of the passions, will bring a certain profitable reward. I have not the slightest expectation of making all converts to simple living who read this book; but as my former pamphlet induced many to change their mode of living for the benefit of their health, I have no doubt this more extensive treatise, in which the hydropathic system is more fully explained, will have a similar effect in many cases. I have recently had two army officers in my establishment, who were restored to comparatively good health during a short stay. They owned the benefit they received from our simple mode of living, and abstinence from stimulating drinks and tobacco; yet they declared it was impossible to avoid taking wine, spirits, &c., at the mess table, and at the dinner parties they were obliged to attend, thus sacrificing health to foolish custom. A recurrence to late dinners, and the usual quantity of wine they had been in the habit of taking, with cigars, will certainly bring a return of the ailments for which they came to my establishment for relief, and prevent them enjoying that good health and calm state of mind which a natural state of the stomach, and quiet nerves attendant thereon, so materially promote. I and my wife have signed the total abstinence pledge not to use any alcoholic liquors, or keep them in our house, except for medicinal purposes; and, consequently, are not pressed to break it by our friends. This plan is by far the best; it sets a good example, and is a security against returning to an injurious practice.

DIET.—The following is the simple plan of diet we practise, both at home and at the Hydropathic Establishment, and which we can recommend from experience to all.

BREAKFAST.—Scotch oatmeal porridge, or milk; brown bread and butter (*on no account buttered toast*); light boiled eggs, with cocoa made from the stewed nibs. A glass of water, with brown bread and butter, and a light boiled egg, is, however, far the most wholesome. Toasted bread tends to constipation.

DINNER.—A moderate quantity of animal food, with simple vegetables, farinaceous puddings of rice, flour, tapioca, sago, semolina, &c., with stewed apples, rhubarb, or green fruit. Avoid all dried fruit, as the husk is indigestible, and what is called plum-pudding (made of flour, suet, and dried fruit) is especially so. When the puddings are removed, dinner should be finished; all after does harm. Water only for beverage. In all cases a very moderate use of animal food is the best. If any chest affection, or stomach or liver irritation, animal food is positively injurious from its stimulating qualities; and in cases of constipation of the bowels animal food will greatly increase the difficulty in the excrementary evacuations. In stomach affections, or weak digestion, I prescribe meat chopped fine, and mixed with bread crumbs, and a spoonful of gravy, but no vegetables. If persons will but confine themselves to simple food, they will be amply rewarded with good health.

EVENING MEAL, at six or seven o'clock, consisting of weak black tea, cocoa, brown bread and butter, eggs, or Scotch oatmeal porridge; nothing after this, except sometimes a glass of milk, without bread. Some constitutions may require something more, which should be a little bread and butter, and a glass of water about nine o'clock, but these are exceptions.

ADVICE TO MINISTERS OF THE GOSPEL AND ALL PUBLIC SPEAKERS.—Dr. Jonah Horner, in his excellent work on "Health: what Preserves, what Destroys, and what Restores it," (Ward and Co., Paternoster Row, price 1s. 6d.,) in which there is also much important information in a popular form, says, "I know that many ministers of the glorious Gospel, who preach on week-nights as well as on the Sabbath, make a great mistake in taking suppers after their labour in the pulpit. I know well, that they are frequently urged to it by the kindness of friends with whom they have their temporary abode. Frequently, also, they have walked some miles to their work; and a sense of fatigue after sermon, with, perhaps, a somewhat urgent appetite, plead strongly, but wrongly for supper. Let such remember, that *sleep* is the only legitimate restorer of nervous energy; and that food is for the supply of the waste of the tissues. Again, a demand is always made on the nerves for the digestion of food. You see, then, that at bedtime, when the brain and nerves are in the most exhausted state, it must be improper to take food for that purpose which is best and most naturally answered by sleep."

This will be found quite true in practice, although it is so opposite to popular opinion. Abstaining from animal food altogether, when pressed with mental exercise, will be found of great service. The idea that strength cannot be kept up without the use of animal food, is shown to be fallacious by some of the first authorities on such subjects. The strongest, healthiest, and longest-lived people in the world do not use animal food at all. The following statements as to the comparative ingredients of brown bread and pure blood show that, by a diet of pure brown bread and water only, the body will be supplied with perfect nutriment.—

BROWN BREAD, when unadulterated, contains all the elements of pure blood, the comparative ingredients are as follows:—

Pure Rich Blood contains—	Pure Brown Bread contains—
Fibrine	Fibrine
Casein	Casein
Albumen	Albumen
Colouring matter	Gluten
Fat	Oil
Sugar	Sugar
Chloride of Potassium	Chloride of Potassium
" Sodium	" Sodium
Phosphate of Soda	Phosphate of Soda
Lime, Magnesia	Lime, Magnesia
Iron	Iron
	Starch

Best Brown Bread.

1,000 lbs. of wheat ground all down together contain—

Muscular Matter	156 lbs.
Bone Material	170 „
Fat	28 „

Fine White Bread.

1,000 lbs. of finest White Flour contain—

Muscular Matter	130 lbs.
Bone Material	60 „
Fat	20 „

Taking the three ingredients together, the flour containing a portion of bran is far more nourishing than fine flour without bran. From the above it will be seen that good brown bread will alone support life and supply all the constituent parts of pure blood; and it is to be noticed that no other single article of food alone will afford this. There is often much adulteration in it, which cannot be detected, from the colour hiding deleterious substances introduced into the material. The best way to procure good brown bread is to take 14 lbs. of the best unadulterated superfine flour, adding to it 1½ lb. of sifted bran, and fermenting with yeast, made according to the receipt at the end of this book. Brewers' or publicans' yeast always contains deleterious matter, which is thrown up more especially in the yeast. German yeast is also highly objectionable. When it is proved beyond all doubt that homœopathic or minute doses of drugs produce powerful effects on the body, it is very obvious that persons taking not very minute doses of alum, &c. (which bakers' bread almost, if not quite, without exception contains,) must prevent any hygienic treatment keeping their bodies in health. The public will have very light and very white bread; and liquor that sparkles and foams in the glass, and potent to stimulate; the bakers, brewers, and publicans, consequently, are obliged to put ingredients* into their manufactures to please the palates of the public, to the ruin of the health of their customers; shortening their lives by slow, and often painful, disease.

DINNER PARTIES; *or the way in which persons prepare themselves for the doctors.*—When society is more fully alive to the wisdom of only eating and drinking to enable the body to go through the duties of life, without regard to pleasing the palate, life will then be greatly lengthened, and disease and suffering immensely decreased. Thousands now are in a constant state of nervous dyspepsia, and their lives rendered anything but happy, simply by their living more to please their taste than to sustain the body. I shall never forget joining a dinner party, which I will adduce as an ordinary illustration of the way in which thousands, who have the means for destroying their health and comfort, are indulging themselves daily, or several times a week. The party was at a gentleman's house in a distant part of the country, and will not, I know, be recognised by any readers of this work, except, perhaps, by the gentleman himself, should he read this book. It was on a cold winter's evening, about ten years ago, snow on the ground, and a severe frost; provisions dear, work scarce, and a time of unusual suffering among the poor. After we had assembled in the drawing-room, before dinner, the conversation turned on the topics of the day, and amongst other matters, on the great distress among the people around. The gentleman said that he had that afternoon visited the house of an old man, which I knew to be within one hundred yards of his own door. He saw a pot on the fire, with something boiling in it. He knew the old man, who lived alone, was very destitute, and he asked him what he had in the pot. He replied, he should not tell him. The gentleman went to the fire, lifted up the cover, and saw the pot filled with turnip tops, or leaves, which the old man was cooking for his only meal that day. This, of course, was heard with some expressions of sympathy by the assembled party, especially by the ladies. It was, however, too disagreeable for us to dwell upon, and so, after a little chat on more agreeable subjects, the servant announced the welcome summons to dinner; and away we went in procession to the dining-room, each gentleman taking a lady on his arm, forgetting all about the turnip tops, and such disagreeable matters, as we entered a large and well-lighted dining-room, displaying a well-furnished table, with a tureen of soup at one end, and a very fine codfish under cover at the other, and further adorned with various sparkling decanters and long-necked bottles of wine. I well recollect the sight which greeted us. After we were all seated, and the short grace pronounced, we fell to in good earnest, for we had a good deal of work before us, and even winter evenings come to an end. Some chose the rich white soup, made principally of cream, stewed veal, and fowl, almonds, vermicelli, onions, sweet herbs, &c. Some chose codfish and oyster-sauce; and with this course one or two glasses of wine were dispatched. I often found it rather disagreeably perplexing, and I am sure others did too, to know which to choose among so many good things; and rather annoying to be obliged to miss tasting some of them.

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* Porter and ale are adulterated with cocculus indicus, tobacco, grains of paradise, capsicum, ginger, quassia, wormwood, calamus root, carraway and coriander seeds, orange powder, liquorice, honey, sulphate of iron, sulphuric acid, cream of tartar, alum, carbonate of potash, oyster shells, hartshorn shavings, fabia amara, or nux vomica, and beans for fining.

Next followed roast beef, and boiled turkey with rich white cream sauce, some mutton chops, sweetbreads, &c. The latter dishes, for the information of the uninitiated I may state, are called *entremets*, or side-dishes, and are cooked in a scientific way, for delicate or curious stomachs which cannot feed upon plain beef or mutton. Potatoes, ornamented dishes of turnips (without tops) and carrots, which, with greens, vegetable marrow, and sea-kale, helped us to avoid feeding too heavily on solid flesh; and with the sherry and sparkling Moselle wine, gave great pleasure to the gratified palate. Many a pleasant sally of wit, and agreeable interchange of pledges by the wine-glass, heightened the pleasures of good fellowship; and as it was at the house of a religious professor, and some highly reputed religious persons being present, I believe all felt as I did, heartily satisfied with ourselves and the entertainment, and that we could not possibly be doing anything either wrong or inconsistent with our Christian profession, at least I am sure that was my feeling. I had so often been complimented for being a sound churchman, and as such a true Christian—and this by the ministry—that I for one was as content, and convinced on the subject, as if I had had Christ's testimony on paper in my pocket.

But to proceed with the business of the evening. It was now about seven o'clock; we had entered the room about six, and there was yet a good deal to dispatch. After the beef and turkey were removed, a pheasant, a hare, and a brace of partridges were uncovered; with dried bread crumbs, gravy, and smooth bread sauce cayenned for the game, and red currant jelly and force-meat stuffing for the hare. Of vegetables, little or none was taken, as we had already filled up some chinks with them, and they would prevent the fine flavour of game from being fully appreciated. Wine, of course, was from time to time supplied by the servants, who kept a sharp look-out on empty glasses, making it rather difficult for us to recollect how often they had been emptied.

The next course consisted of rich plum-puddings, brought in a blaze from spirits of wine being poured over them and then lighted, with custards, delicious tarts, syllabubs, creams, trifles,* jellies in pyramids, and sweets in various ornamental forms, according to the extent of the hostess's talent for invention. Champagne, as being of a more lively character, is served round with this course; and I well remember on this occasion, from the butler not having guarded his bottles from the severe cold, several of them were opened and taken away, not being found "up." These cost about 6s. 6d. per bottle, and when once opened are spoiled. After having solaced ourselves with these creature comforts—celery, cold and toasted cheese, with maccaroni and tankards of spiced ale, were introduced; and then again a short grace was said, and dinner finished. We had, however, by no means done either with eating or drinking. The table being cleared, fresh decanters of the best wine, and various fruits, were brought on, with brandy-cherries, preserves, biscuits, guava jelly, preserved pines, walnuts, almonds, &c. After the first round of the bottle, the ladies retired, and we sat chatting on various topics, sipping our wine, and helping ourselves to fruit, &c., as fancy inclined us. The feast and the good fellowship, with so many good people present, and the nicely warmed room, made us quite forgetful of the man with the turnip tops for his dinner and supper; and when, after a cup of coffee and a small glass of liqueur, we went into the drawing room, to the ladies, we found all still *couleur de rose*. We sipped our tea, enjoyed the usual amusements of the evening, and took our leave about eleven o'clock to our various homes: there arrived, we said our prayers, asking God to "give us day by day our daily bread: lead us not into temptation, but deliver us from evil." Those slept who could.

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* AN EXCELLENT TRIFLE.—Lay macaroons and ratafia-cakes over the bottom of your dish, and pour in as much brandy and sherry as they will suck up; which when they have done, pour on them cold rich cream custard. It must stand two or three inches thick; on that put a layer of raspberry jam, and cover the whole with a very high whip, made the day before, of rich cream, the whites of two well-beaten eggs, sugar, lemon-peel, and raisin-wine, well beat, with a whisk kept only to whip syllabubs and cream.

I have been thus particular in this description for the information of those who may read this book, but who may never have had the privilege of *good* (?) *society*; and I will also assure them I have given a strictly true relation, as many poor jaded cooks and butlers can avouch. I will also tell them, such feasts are of almost daily occurrence, at various seasons of the year, and at intervals throughout the whole year; and they are given and partaken of, not only by laymen, but ministers who esteem themselves both orthodox and evangelical. It is quite true, part of the viands I have described are sometimes omitted, not that there is either objection to serve or partake of them, but because it is not quite convenient for every one's pocket. After all this, the account has afterwards to be settled with head-ache, heart-ache, gout, liver disease, congestion of the brain, and a long list of diseases brought on by a few hours of sensual enjoyment; yet total abstainers from alcohol, and moderate livers, who enjoy good health, are more the butt of society than those who by such feasts act more like heathens of old than Christians. I have long taken leave of head-aches on this score. Eating and drinking only to live, I find, brings me excellent health; and the satisfaction of having ability to perform the duty God has assigned me brings a better reward.

We now enter upon the subject of CLOTHING.—No system of bathing will avail to keep the body in health without attention to this point. It is the fashion at most Water Cure Establishments to prohibit all under-clothing. In some establishments no sooner does a patient arrive, but the doctor requests all flannels to be dispensed with, saying they prevent the free action of the air on the surface of the body. This theory, however, is found impracticable if patients are to make any progress in expelling morbid matter from the body, or quieting irritated nerves; for until the vis vitæ, or power of life, is raised and kept up by warmth, the cold only causes greater internal congestion. The vital power must first be strong enough to cause circulation of warm healthy blood on the surface of the body, then the patient may use lighter under-clothing, but not without caution in this uncertain climate can it be dispensed with altogether. Very fine woollen under-clothing even in summer keeps up an even temperature on the skin, and allows evaporation without a sense of damp, which perspiration causes to the wearer of either calico or linen. The demand for light gauze under-waistcoats made of foreign wool, or silk and wool, is very considerable, even for the East Indies (whence the name of India gauze) and other hot climates. The late Duke of Wellington found he could not keep his men in health with their linen pantaloons, and ordered the use of under-clothing and cloth trowsers. Dr. Gully, at page 413 of his book on the Water Cure, makes some sound and incontrovertible observations on this point. I have myself frequently seen much mischief and suffering caused by the attempt to harden the body by exposure; and have known cases wherein such a course pursued at some water establishments has resulted in permanent injury to the constitution, and some have resulted in loss of life. I do not by any means advocate persons coddling themselves in flannels; the rule with me is to advise all my patients, and others, to wear just sufficient to keep the surface of the body warm. In cases of invalids, where the vital power is low, warmer clothing is required than by persons in good health. More warmth is required by those who lead sedentary lives, and especially by those who have much brain-work; as such work draws on the electricity of the nutritive organic nerves in aid of the brain, and consequently lowers the vital power of the body, and neither invalids, nor any without a strong constitution, can dispense with it, and regain or preserve health. Warm clothing, especially in winter, preserves the vital heat, and, consequently, aids the action of the liver, stomach, and especially the bowels, as Dr. Gully justly observes: "Great mischief is done by attempts at hardening the body by exposure to cold; the blood is driven from the surface to the internal organs, causing congestion in them, and numbers in this way lay the foundation of very fatal complaints." The lungs are most sensitive to an overcharge of blood. The feeling of chilly or excessive heats must be the guide. In summer, caution should be used by not overclothing the body; but in autumn, when frosty nights come on, all persons, but especially the delicate, should begin to take precaution, by paying proper attention to their clothing.

EXERCISE.—Long walks before breakfast are injurious, as the stomach thereby becomes exhausted, has not power to digest the food taken at that meal, and acidity and head-ache are the consequences. A crust of bread, and a glass of water or milk, should be taken before going out. Exercising the limbs, lungs, and whole frame at proper intervals, is indispensable to health. A trial in Lings, or the Swedish Movement Practice, would be found very beneficial. (The little work on that subject, price 1s., to be had of any bookseller, will well repay its cost.) Unless the body be properly exercised, the replacement of worn-out tissue and morbid matter is slow, from want of due warmth in the blood. By the full exercise of the lungs in good air, oxygen is freely brought in contact with the carbon, or useless matter in the blood, which is thereby consumed and carried off. Where persons cannot take long walks, they may do a great deal towards keeping themselves in health by exercising their limbs, filling the chest as full of air as possible, holding their breath, throwing out the chest, and, at the same time, working the arms; but numbers will be at no trouble of this kind, merely because they have no country walks near, or gardens to exercise in. Health, however, can only be enjoyed by unsparing effort, and will well repay any amount of trouble bestowed upon it, and self-denial practised for its sake.

INJURIOUS EFFECTS OF SMOKING.—S. Solly, Esq., F.R.S., the eminent surgeon of St. Thomas's Hospital, Borough, has lately delivered a very important lecture on paralysis, before the students of that excellent institution, in which smoking is pointed out as one of the various and insidious causes of general paralysis. After condemning the immoderate use of malt liquors or spirits, which only stimulate for a time, and afterwards produce the most enervating and pernicious effects, the lecturer proceeded:—"There is another habit also which I cannot but regard as a curse of the present age—I mean smoking. Now don't be frightened, my young friends, I am not going to give a sermon against smoking, that is not my business; but it is my business to point out to you all the various and insidious causes of general paralysis, and smoking is one of them. I know of no *single* vice which does so much harm as smoking. It is a snare and a delusion. It soothes the excited nervous system at the time, to render it more irritable and feeble ultimately. It is like opium in that respect, and if you want to know all the wretchedness which this drug can produce, you should read the 'Confession of an Opium-eater.' I can always distinguish by his complexion a man who smokes much, and the appearances which the fauces present is an unerring guide to the habits of such a man. I believe that cases of general paralysis are more frequent in England than they used to be, and I suspect that smoking tobacco is one of the causes of that increase."

INFLUENCE OF EARLY HABITS AND EDUCATION.

The development and influence of the nervous system in infancy and youth is of deep importance in the formation of character; but is a subject too abstruse and extensive to be more than alluded to in this little work. It will be seen from my previous remarks, that through the nerves all sensations, motions, and perception are conveyed to and from the soul or sentient part of our being; and it is only through the operation of these nerves or telegraph wires that we see the works of creation around us, that we hold converse with our fellow-creatures, that we act in the business of life, and become sensible of all impressions. Now we know that as by proper exercise in bodily labour the muscles and limbs are more fully developed, so it is the case with the nerves by proper training in early life. The ruin of many might be traced, if the truth could be ascertained, to their early training. Even in early infancy the methods used by some nurses, and foolish persons, to awe, soothe, or quiet infants,* leads to the unequal development of certain nerves, and which pernicious practices will afterwards become a source of misery to the religiously educated, and of final destruction and ruin to others not brought up with good example, and taught to keep their animal propensities in subjection to their reason and convictions. Many earnest Christians have to bear a thorn in the flesh from causes little thought of; and of which, if their parents had possessed the knowledge, might have been avoided : the foundation of bad passions, addiction to strong drinks, and other more insinuating sensual desires, have been laid in the mind during childhood, through particular nerves formed for righteous purposes, but when unduly and untimely developed by the folly of others were turned into a curse. Whitehead, on Hereditary Diseases, and M'Dougall, on Spermatorrhœa, give sad pictures of human suffering and misery, which might have been prevented by enlightened Christian discipline in parents and their offspring, had they known the true cause. Again, overworking the brain of young children, by the influence the nerves of sensation exercise over those of nutrition, stops the healthy development of the muscles, bone, &c., rendering such persons, when they come to act on the world's stage, utterly unfit for their duties. The soul has in consequence (as before observed) a poor, weak, disordered machine by which to perform its great duties ; and we see such of weak constitutions, and wanting judgment and decision, easily carried away by animal impulse. How rarely do we see the children of our successful statesmen, merchants, and manufacturers, equal their parents in vigour ? and this from the ambition of the parents in desiring them to excel in their education ? On the contrary, how often we see or read of young men from the country making large fortunes, and distinguishing themselves by great powers of action, from their nervous system being fully developed, and their being mentally and physically uninjured by brain-work in their youth, so that when they come on the arena of action, they find in their well-developed frame a machine fully equal to perform the great work of life with ease, and bear its vicissitudes with composure. Seldom, however, is this constitution inherited by their descendants, for parents, overrating the value of a scientific or accomplished education, begin early to give their children a training in what they consider themselves to have been deficient. By this course they lay the foundation of nervous dyspepsia, with its long catalogue of miseries, to be handed down to posterity, increasing the evil from one generation to another, till the faculties of the offspring being thoroughly degenerated, hereditary insanity or imbecility is often the consequence. Children of the middle and higher classes are early allowed to use flesh meat and strong stimulants, which often induce inflammation and fever, carrying off thousands of such children, certainly not to the loss of society at large; such diet tends to inflame the animal passions, and produces anything but amiability of disposition. Children should never have flesh meat or stimulants, if they are to have calm minds in sound healthy bodies.

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* I do not allude to any drugs, but to actions.

We are greatly encouraged in our work by the testimonies we continually receive, that we are not labouring in vain. An Englishman in Holland has written to me, stating that one of my Hydropathic pamphlets fell into his hands, and that for several years he has kept himself and family in health by following the directions it contains; and in that country of ague and fever the Hydropathic system is indeed valuable. A journeyman watch-maker from Coventry came to me in a miserable state, after having tried every means in his power for the restoration of his health, and he is now in a fair way for recovery. He was induced to come by one of his fellow-workmen, who having, after every means for his recovery had been tried and failed, got one of my pamphlets, acted promptly by it, and was soon restored.

Also in return for our incessant labour, and the expenditure of our income, we have often the further gratification of meeting some of our former patients as we journey about, who come with glad and grateful hearts to tell us of their welfare, and how God has restored them to fulfil the duties of life. Many of our free hospital patients, and some at our Matlock Bank establishment, tell us with joy, that while going through the process for the restoration of their bodies, God has cured their souls of sin's leprosy. Others, who, although too far gone for bodily restoration, have found what is more than health of body—they have become acquainted with Christ, and the knowledge of their sins forgiven. One interesting letter I give as follows from Captain Duddridge, at one time one of the finest specimens of an English seaman that ever trod a deck. Rejoicing in his strength and manly beauty, he only thought of God as thousands of careless sinners do, without any real desire to know and love him. A blow on his spine laid him low, and made him a cripple; he came to our establishment—his health was improved, but the injury to his spine was irremediable. He found, however, peace in believing, and is now one of our dearest Christian friends.

"*Bridgewater, Friday,* ——. My dear Sir, I know you will be glad to hear from me, and how I am getting on. I am still laying on my beam ends, with my timbers chafed, very sore, and no prospect of getting repaired in this world, as it appears there are no carpenters to be got that understand the damage done to my hull. One doctor says the keel is broke (in the shape of my back bone); another says it is the dry rot in my timbers (in the shape of rheumatic in the joints). But for all that, it is a consolation to know that there is a Physician who knows, and can, if he thinks fit, refit and send the ship to sea again. I have sent you one of my sermons for perusal, and I assure you that when alone sometimes I enjoy sweet communion with God; and he don't let me be short of ideas, such as they are. Perhaps the mill-hands would be glad to hear anything from the Captain. Please, dear Sir, give my love to them all. I am happy to say that my wife and family remain well, and desire, with myself, their very best respects to yourself and Mrs. Smedley. I trust that she, with yourself, are quite well; and that the Lord will grant you both health for many years to come, is the sincere prayer of yours affectionately, JAMES DUDDRIDGE."

"L——, December, 1858.—Dear Mr. Smedley,—I cannot tell how to begin to express my gratitude to you and Mrs. Smedley for all the kindness I have received from you, both in respect to my mind and body. My wife and I often talk about you by the fire-side; and I am sure if I had not been with you for the last two months I should not have had the comfort that I now enjoy both in mind and body; and I feel determined to go forward by the grace of God, and not allow anything to hinder me in the way that leads to heaven. I feel now that I am in the midst of all the things that I have spent a great portion of my time in, that it is all I can do to keep my mind quiet; but I find there is no way but one, and that is looking above for help, and by so doing I get strength which enables me to go forward. After I return from —— I intend coming to see you. I assure you it is quite a pleasure for me to think about you both. May the Lord be with you and bless you in all your labours of love. I intend to go out every day when the weather is favourable. My wife unites with me in kind regards to Mrs. Smedley and yourself.

"I am yours very sincerely,——"

"H——, November 22nd, 1858.—Dear Sir,—It is with feelings of gratitude and thankfulness to Almighty God and to you for the great benefit I have received at your Establishment, I have still continued to improve since I came home, and my dear wife says she can see daily addition to my flesh, and I can feel an addition to my strength the same, for which I praise God.

"All my friends are astonished at the effect of the water treatment upon me, and I have seen both the surgeon and physician, and they have expressed themselves at a complete loss in my case. I met this morning a friend, and he had had some conversation with one of the doctors that attended me, and the doctor told him that he had seen the other doctor on the subject, and he said that they were entirely at a loss in the case, and astonished to witness what the water treatment had done for me in so short a time. I shall ever feel grateful. My dear wife joins me in her expression of thankfulness for the benefit I have received, and "I am, dear Sir, yours sincerely,——"

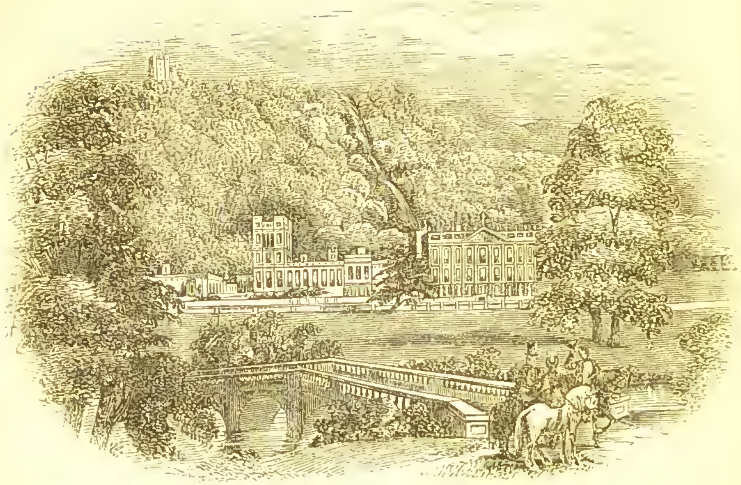
"To J. Smedley, Esq."

The following note I have received from the doctor of one of the largest Hydropathic Establishments in England on the closing of our Hydropathic Establishment, which we were compelled to, from the overwhelming number of patients; we have since re-opened it with additional assistance and improved premises, and it is now as prosperous as before; ninety having come in, in twenty-six days after opening.

"January 25th.—My dear Sir,—I have just returned from a short visit to London, and find a notice that you are about to extinguish the Hydropathic Establishment at Matlock Bank. In the course of a few years you have given an amazing impetus to the cause of Hydropathy *v.* Physic, both by your practice and your publications, and your retirement will be a great public loss not soon to be repaired. It will be an exceedingly difficult position for any other man to occupy. With my kind regards,

"Believe me, yours very truly.——."

I could fill a volume with such testimonials, and some of the writers are gone where "there is no more sorrow nor crying; for the former things have passed away;" they have left this world with affectionate expressions of regard for us, and prayers for the prosperity of our work.



CHATSWORTH, THE SEAT OF THE DUKE OF DEVONSHIRE.

DIVISION III.

BATHS AND PRACTICE OF HYDROPATHY.

WITH ILLUSTRATIONS.

THE DRIPPING SHEET.—Take a linen or coarse cotton sheet, and dip it in water; the patient, undressed, put it on the same way as a cloak, leaving the head out, and rubbing the body well from one to two minutes, the chest first. Then, after dipping the feet in cold water, put on a dry sheet, in a similar way, and well dry the body, and dress immediately. Very delicate persons may rub the body with a dry blanket instead of, or after, the sheet. For very delicate patients, the water may be sixty or seventy degrees, but cold is generally the best; when dressed, drink a little cold water, and take exercise. Another method is to have a sheet dipped in warm or hot water first applied, and then followed with one cold, or nearly so. If liable to determination of blood to the head, or the vital power be low, the patient should stand in a foot bath of hot water while going through the process. It cannot be too well known that all violent shocks to the system should be avoided. The dripping sheet will be found a good tonic application for a fatigued system, and a very safe and mild remedy, as the cold sheet quickly becomes warm on the body, and causes a general glow through the frame. Two cold dripping sheets, one after the other, when they can be borne, are very refreshing. Sponging the head with cold water before having the dripping sheet, or a wet cloth put round the head, is useful in cases of stout persons. (Any of the baths may be taken not only without danger when the body is in a state of perspiration, but with more advantage.)

WET PACK.—Spread a mackintosh sheet, or thick quilt, on a mattress, and over that one or two dry blankets; then take a thick cotton or linen sheet, (coarse cotton, which is best, may be bought for about 4s. per pair,) dip it in cold water, and wring the water out as much as possible. This is best done by two persons, the sheet being doubled, one taking hold of each end and twisting whilst any water can be got out. The patient undressed lies down upon the back on the wet sheet, holding up the arms while one side of it is thrown over the body and tucked in; then the patient puts the arms down by the side of the body, and the other part of the wet sheet is thrown over all and tightly tucked in: the blanket and mackintosh are then brought over, on each side, in a similar manner; a bed or plenty of clothes is next put on the patient, so as to keep the body warm. Put a small pillow on each shoulder, or more clothes, to keep the warmth better in about the throat and shoulders. In case of sore throat, wring a napkin out of cold water, double it into fourfold, lengthwise, and before lying down wrap it round the throat, over which put a length of flannel, one and a half or two yards, then lie down on the sheet and go on with packing. It is important, in packing, that the sheet be well wrung out;* that the patient be tightly packed in the sheet and blanket, with the bed or plenty of clothes on, and the wet sheet and blanket closed round the shoulders and neck. The wet sheet must not be left in a lump about the feet. It is better to wrap the legs to the knees in a dry blanket before winding the wet sheet round; and if the feet do not get warm, apply a hot-water bottle to them. After being in pack one hour, or one hour and a quarter, take a cold dripping sheet or shallow bath, after which a dry sheet, use rubbing sheet at 70 degrees, if delicate, standing on a hot pad or in hot water for the dripping sheet, dress quickly, and then take moderate exercise. Delicate persons should have the bath or sheet 70 degrees heat. A good addition to these directions is to dip a napkin in cold water, and after wringing the water out, wrap it round the head while in the pack; this prevents any tendency to head-ache, and is very soothing. Wet packs may be repeated several times in the space of twelve hours in cases of fever, cold, constipation, inflammation, or violent bilious attacks. In cases of scarlet or typhus fever, the sheet should be wrung out of hot water. In cold, or ordinary stomach disorder, I find no plan so efficacious as wet packs given every day or every other day, or twice a day. I now mostly use the fomenting-can in packing, filling it with hot water, and laying it on the blanket over the chest and bowels; this aids the progress and good effect of the pack. Wet sheet packing should seldom be used by delicate persons with low power of re-action. Fomenting or towel pack, as under, is far better in such cases. Still there is no process so efficacious as wet packing for bilious attacks, bad cold, indigestion, and constipation of bowels; and if the body be too low for re-action, and a person remains cold after a pack, a steam bath, hot bath, or hot sheet, followed by a cold sheet, will soon restore the animal heat. For persons in health, a wet pack once a week is a good preservative of health.

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* I use a pair of rollers in a frame.

Some persons will naturally shrink, from feelings of delicacy, in adopting this treatment; but a pack may be managed without any unpleasant exposure of the body, by having the blanket and wet sheet over it laid on the mattress, the attendant then to retire, or turn aside, whilst the person undresses, and lies down on the back upon the wet sheet, and pulls one side over the body; the packing can then be proceeded with. All the baths may, with a little management, be gone through without any indelicate exposure.

FOMENTING, OR FEVER PACK.—Use two towels instead of the wet sheet, one below and the other above; after the patient has been in pack ten minutes, take the towels out, and have two other towels wrung out of warm water, to replace them; wipe the body with wet cloth, go on replacing the towels every ten or fifteen minutes for one or two hours; sipping cold water during the time, then take a shallow bath, or tepid dripping sheet This reduces fever rapidly.

The above we apply in delicate cases, or where the patient is very low in vital power, allowing the towels to remain without replacing for one hour, and following with dripping sheet or shallow bath, 70 degrees.

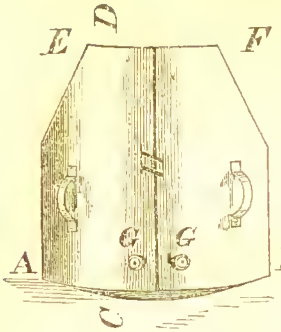
DRY RUBBING.—This is an important application, especially where the vital power is too low to bear much application of vapour baths, fomentation, packing, &c. We can get surface circulation by this process when we dare not attempt any other mode, and in all cases, whether the vital action is strong or feeble, it is highly beneficial, especially if the operator is strong and in good health, as he communicates a good deal of vital electricity. At Dr. Elliotson's Mesmeric Institution, London, they profess, and I believe with truth, to restore or relieve cases solely by this plan. For ordinary dry rubbing let the patient stand on a hot pad, or in hot water, and have a blanket thrown over the body, leaving the head out; rub the body under the blanket for ten minutes. If vital power be very low, as in some cases of consumption and liver disease, we rub with a little dry mustard, and leave the mustard on till the next bath.

TOWEL RUBBING.—A plan for moderating the application of the dripping sheet, or where the person cannot rise out of bed, is to spread mackintosh and blanket under the patient; then take a towel, dipped in cold or tepid water, according to the strength of the patient, slightly wrung out, with which gently rub the upper part of the body, and dry it: then cover that part, and do the same to the other portion of the body.

PACKING LIMBS ONLY.—This we practise a good deal in cases of rheumatism, dropsy, inflammation, paralysis, or numbness of limbs, by taking a strip of brown calico, five or six inches broad, wrung out of cold or tepid water, and wrapping it round the limb, then a similar strip of mackintosh, and strips of flannel over all. Re-wet the bandages every two or three hours, at same time sponging the limb with cold or tepid water, and keeping the pack on night and day until it produces what is called crisis: continue this until the crisis is fully out; then treat the crisis by putting a piece of linen loosely round, and sponge after with tepid water. This does wonders in expelling morbid matter, and restoring vitality. Varicose veins are by this process entirely cured. We use also a wrapper, made similar to half a pair of pantaloons, inside two thicknesses of thick cotton, next a covering of flannel, and next mackintosh, the cotton wrung out of tepid water; a dry flannel wrapper over all this is worn night and day, and very efficacious in bringing out crisis in sciatica cases.

DRY PACK.—Lay two or three blankets on a mattress; the patient then lies down upon them undressed, and is packed in the same way as in the wet sheet pack; a piece of mackintosh cloth placed under the blankets, and wrapped round the body over the blankets, is more certain to produce perspiration. The patient should remain in, after the perspiration has begun, from fifteen to twenty minutes, and afterwards take a dripping sheet, or cold shallow bath. Whilst in the pack a wet cloth should be kept on round the head, and a tumbler of cold water taken. The dry pack is to produce a greater degree of perspiration. and is useful in chronic rheumatism, or chronic liver cases; but from the length of time required in most cases we do not often use it. preferring the spirit lamp.

FOMENTATION.—This is a very beneficial application which we have adopted the last two years. First, spread a mackintosh sheet on the bed, then two blankets, on which the person with only the trunk part of the body undressed, or wholly undressed, is laid; one of the fomenting flannels, previously wrung out of hot water, is placed under the back, and another over the chest and bowels; then bring one side of the blanket over, put the arms down, then lay the hot can on. and put the other side of the blanket over, then the mackintosh; the person lies quietly from three quarters to one hour,



FOMENTING CAN.

10 in. E to F; 16 in. A to E; 14 in. C to D; 18 in. A to B. 1 in. thick, slightly arched. H, a joint with wire, to divide the can for separate use. G, screw plugs to fill the can with five pints of boiling water.

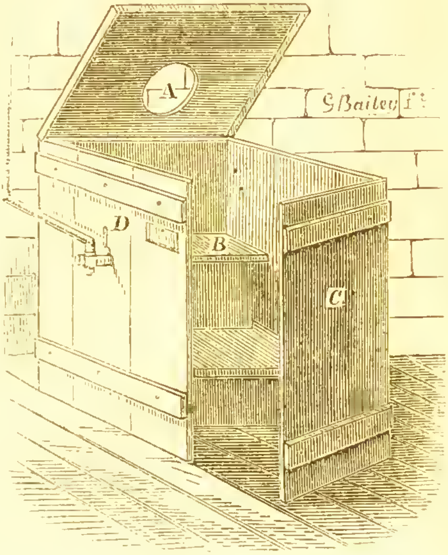
and will often go to sleep. Afterwards wipe the trunk with a towel wrung out of cold water, and dress, or have a cold dripping sheet, or cold or tepid wash over.

This application is very mild and efficacious in chest, liver, and stomach affections, and may be frequently used without any danger of weakening the frame, and with only partially undressing. A wet towel round the head, with the feet in flannel, and sipping cold water, is used in some delicate cases. The fomenting flannels are each made of six thicknesses of flannel, twenty-one inches square, and quilted to keep them straight.

The use of this fomenting-can would often prevent serious illness, and is a perfectly safe stimulant and counter-irritant, drawing blood to the surface, and thereby relieving internal congestion, the cause of so much mischief. Hot mustard and water foot and hand baths repeated, we find does wonders in relieving congestion, and no harm can possibly arise from their frequent application.

DRY FOMENTATION FOR BOWEL COMPLAINT.—First put the legs in hot mustard and water fifteen minutes, then lie down in bed wrapped in two dry blankets, and have the hot can over the bowels under the first blanket for half an hour or more, and no wash after. The horizontal position should be kept as much as possible in this complaint.

VAPOUR BATH.—The patient, undressed, sits on a chair, a blanket is put round, covering the whole person in the chair, leaving out the head; then coverlids or rugs, or anything of the kind, are put over the blanket. Take care to close the cloths well round the throat, and let them fall on the floor so as to keep in the steam. Then take about a gallon of boiling water in a pan, put a hot brick or a piece of hot iron, or hot cokes, in the water, place the vessel under the chair, closing the clothes well up, and perspiration will soon be produced. During the bath some cold water should be taken by sips, and the forehead bathed with cold water with a cloth or sponge. After the patient has perspired about ten or fifteen minutes, all the cloths must be thrown off, and a cold dipping sheet or shallow bath given. The heat should not be strong at first, and this is easily regulated by raising the blanket a little from the floor for a short time. The feet in a pan of hot water, and a napkin wrung out of cold water, frequently renewed, held to the head, prevents headache. This bath is very useful in all cases of over-fatigue and chilliness of the frame, and may be used, with great advantage, in keeping the body in order, morning, noon, or evening: for rheumatism and paralysis it is very efficacious. At my establishment I use a box for the purpose, into which steam is conveyed from a boiler, and such boxes my carpenter will supply to any one on application. Patients may soap themselves in these vapour baths to advantage. I use this bath, several mornings or evenings five minutes for weeks without any weakening effects.

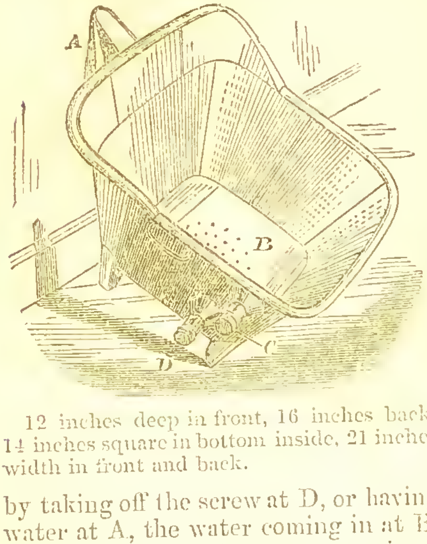


STEAM BOX.—Used also for Spirit Lamp. B is the seat the person sits upon, then close the door C, and put down the lid, the head going through the hole A, 12 inches in diameter. 4 feet high, 29 inches wide, 34 inches in depth from back to front, outside measure. Put a towel round the top of the lid at A, to keep in the steam; sip cold water; have a wet napkin round the head, and the feet in hot water. D is a steam pipe, with a handle outside and a handle inside, for the bather to alter the force of steam at pleasure. The steam is sent in under the seat, and on the front of the seat hanging down to the foot-board is a curtain of mackintosh or linen, to keep the force of the steam from the legs. This bath is used from five to ten minutes, or in some cases fifteen minutes, and after it a cold dripping sheet, a cold sponge, or cold shallow. A fomenting pad wrung out of hot water, and held to the stomach and bowels while in, is useful in some cases, and soap the body well.

For spirit lamp introduce two spirit lamps, or gas jets, near the foot-board.

SPIRIT LAMP.—This is given in the same way and followed by the sheet or bath, as used after the vapour bath, only instead of the hot water and brick, a lighted lamp, or saucer, containing spirits of wine, or rectified spirits of naphtha, which is cheaper and quite as good, is put under the chair. I use gas at my free hospital. This bath is of great use in reducing fat and hardening the muscles. I have reduced a patient sixteen pounds in nine days, and brought him from a state bordering upon apoplexy, to walk ten miles without fatigue, taking away all uncomfortable feelings, especially in the head. With perfect safety it may be used once a day, for a week or more. In the forenoon, or afternoon, is the best time. A wet cloth should be put round the head, and a tumbler or more of cold water administered by sips, during the application, and the feet placed in a pan of hot water; a napkin wrung out of cold should be held to the stomach while in the bath, and re-wetted: in cases of venous apoplexy it is very efficient, used with caution. This bath is also useful in first stages of dropsy, and chronic liver disease, and is not weakening. A mackintosh, or coarse linen or calico petticoat, oiled with boiled linseed oil, to make it air-tight, is very suitable for the steam bath or spirit lamp. It should be 60 inches long, 72 inches wide at the bottom, and 36 inches at the top, with hole for the head, having a narrow piece of calico and a string to draw round the throat. When the patient is seated undressed on the chair, put the petticoat over the person without any blanket, and the hot brick and water, or spirit lamp, underneath. A blanket is useful to be laid on the floor round the petticoat to keep the heat in. I supply the mackintosh petticoat to patients, and they can be made so as to serve for wet packing as well. I had one made for a Major in the army to take about with him.

SITTING OR SITZ BATH.—A common wash-tub or any vessel about twelve inches deep will do. Put water in to the depth of five or six inches; sit down in it covering the person over with a blanket, either leaving out the head or not. Entire covering keeps in the bodily heat better when the person is wholly undressed. It may be managed without entirely undressing; gentlemen only taking off the coat and vest, letting down the trowsers, and drawing a sheet between the legs. I have invented a running sitz, which can be used either as an ordinary one, or as a running sitz with a small quantity of water; by taking off the screw at D, or having it to the depth of C, pouring in water at A., the water coming in at B, and running off at C. A cold sitz bath for ten minutes, or running cold from three to six minutes, is very refreshing after fatigue or mental exertion: and the habitual use of it, as often as convenient, will tend to produce good action of the bowels, and healthily brace the nerves of the spine and brain. For constipation, a sitz, six to ten minutes. cold, in summer, and at from 70 to 75 in delicate cases — a can of warm water poured in first, and reduce to cold, or to sit in the empty bath and have it filled gradually, with the feet in hot water, is preferred by sensitive persons. For piles, the water should be from sixty-five



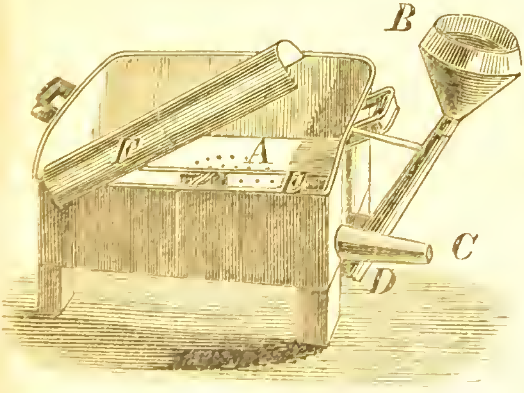
12 inches deep in front, 16 inches back. 14 inches square in bottom inside, 21 inches width in front and back.

to seventy degrees for twenty minutes, and afterwards cold for a minute, wearing a wet body bandage night and day.

WASHING SITZ.—This bath is the most convenient for ordinary use, or when travelling. I have some water put in over night, and on rising I spread my mackintosh sheet on the floor, set the bath on, use 204, holding the head over the bath, squeeze water from the sponge over the back of the head and the face, sit in it from two to five minutes, with the feet out, body covered with a blanket, then dry or soap the body well over with common yellow soap rubbed on a small flannel pad, standing in hot water, or not, as convenient; again, sit down in the bath, and, with a sponge, sponge the body, squeezing from the sponge quantities of water over the shoulders; then stand up in the bath and sponge the legs and arms, then dry with a coarse linen or cotton sheet; the latter may be had for about 4*s.* per pair at any draper's shop, and are such as are mostly used for bed covering by the labouring class; if the body is dried with a napkin, much bodily heat is lost by exposure, and which often does injury. I generally prescribe feet in hot water, or sometimes in hot mustard and water, while sitting in bath, for invalids or delicate persons, and to dash them in cold water on rising. I only use the soaping once or twice a-week.

I cannot too highly recommend, from its good effects, soaping the body well with the common yellow soap; it should be done standing in hot water; then sponge the soap off with cold water, which renders it quite a luxury. The seven or eight millions of pores in the skin discharge the waste matter, and if the surface of the skin is not kept clean, the absorbents, as I have remarked, take back the waste matter, which returns again into the blood, causing incalculable mischief.

LADIES' RUNNING SITZ.—Double a dry sheet, and lay it over the front of the bath F, and sit upon it, and when rising, draw it round the legs to dry with. I have invented this bath, which can be used without any undressing. It should be in every lady's room, and if used as commonly as the wash-hand basin would prevent weakness of the spine, and the long list of distressing weakening ailments to which all females are liable. It has saved lives already by stopping hæmorrhage, which no other means made use of could effect. For this purpose it is used every one or two hours, two minutes at a time, with cold water;



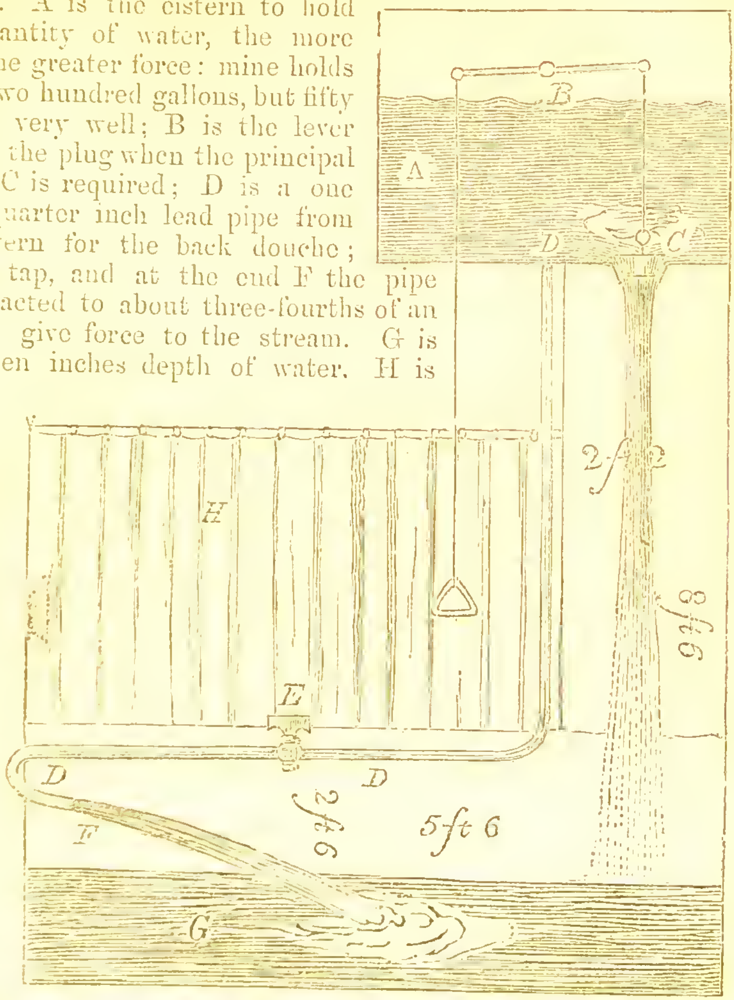
17 in. wide, 18 in. long inside, 6 in. deep in front, 9 in. in back; reserve E 2 in. wide, 19 in. whole height in front

and this may be done with safety by the most delicate. Ordinarily it is used as a sitting bath, for five, ten, or twenty minutes, and may be made running cold by an attendant pouring in water at the funnel B; F is the cover for the reserve E; D is the pipe to carry the water to A, where it rises up in the centre, and passes off through the reserve at E and the pipe C. The reserve is to prevent the water coming over the front, when sitting down. After walking or becoming heated, great benefit will be derived by its use with cold water. For piles, the water should be 65° to 70°, used twenty minutes at a time, and one minute cold, wearing wet body bandage night and day, as before mentioned, and if bandage not warm, put flannel over, especially at night.

DOUCHE BATHS.—There are various modifications of these applications; the principal is the one, which from a cistern, containing from one to two hundred gallons of water, a short tapering pipe contracted to 1¼ inches at the point, or lower aperture, with a valve inside the cistern, worked by a lever, allows the water to fall with considerable force from a height of from eight to twelve feet. This bath is one of great service in many cases, and for ordinary use it is far more efficacious than the shower bath, causing less shock, as the water, as soon as it touches the back, shoulders, and hips, produces instant reaction and warmth. It may be used with perfect safety by any one in ordinary health, and when the body is in a state of perspiration it is a luxury and highly beneficial. It may be used too with great advantage when the body is in an ordinary state, taking care that the stream does not come upon the head or chest, but on the shoulders, spine, hips, and bowels; washing the head in cold water first, or putting on a wet bandage. Ordinarily I use it for about twenty or thirty seconds, or while fifty can be counted; it is stimulating and strengthening. Standing in hot water adds to the efficacy and safety of this bath, but is by no means necessary except where there is congestion of the head, or very full habit.

In cases where there is any affection of the stomach or liver, a flannel pad wrung out of hot water should be previously tied round the chest, or a dry chest compress put on, and stand on a hot flannel pad, or in hot water. In cases of *Chronic Rheumatism* in the knees and ankles, the patient is wrapped in blankets covered by mackintosh or oiled cloth, and set in the bath, and the douche allowed to fall on the parts affected; this is to rouse action in the parts, and will often succeed when no other plan will. Another plan for delicate persons with affection of the spine, or rheumatism in the shoulder, is to sit in a shallow bath with the water ninety degrees, having cold water directed by a pipe from the douche or some other source on the parts affected, until the water in the bath becomes too cold for the patient to remain in. We have gutta percha tubes attached to the main pipes or cisterns, to spout on any particular part wanting vitality; the patient being undressed, and partially enveloped in blankets.

THE DOUCHE AND SHALLOW BATH COMBINED, which I have for personal use, is very effective, and far superior to the common shallow. A is the cistern to hold any quantity of water, the more water the greater force: mine holds about two hundred gallons, but fifty will do very well; B is the lever to draw the plug when the principal douche C is required; D is a one and a quarter inch lead pipe from the cistern for the back douche; E is a tap, and at the end F the pipe is contracted to about three-fourths of an inch, to give force to the stream. G is about ten inches depth of water. H is a curtain to prevent the water splashing over the side of the bath. The way I use the bath is to step in with ten inches depth of water, draw the curtain, and then turn the tap E on immediately, sit down in the bath, the spout pouring water on my back. I rub well with water, and throw it up into the face. Then turn round and let it spout on the throat and bowels, but not on the chest. The open or principal high douche C I use separately, having no water in the bath, except what runs in from the column, letting it fall on the spine, shoulders, and bowels, but not on the head or chest. A large tap should be provided to allow the water to keep running off from the shallow bath C when the large douche is used. I have also hot water laid on for a hot bath S, using cold douche after.



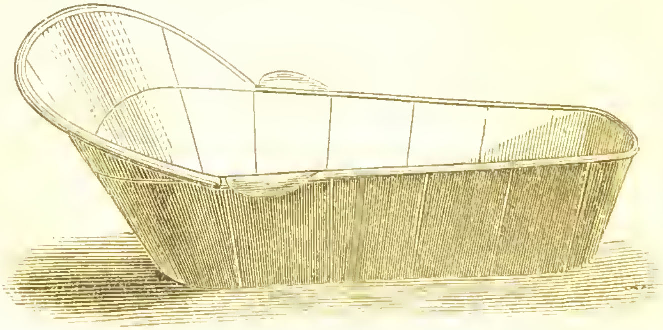
ASCENDING DOUCHE.—This is in the form of a water-closet seat, the water spouting up from beneath, and the person using it regulating the current by a tap on the seat. This bath is very useful in cases of weakness of those parts the water comes in contact with, and can be used without the slightest risk by the most delicate persons.

DRIPPING SHEETS IN COLD WEATHER.—I spread my mackintosh sheet on the chamber floor, and have a cold dripping sheet on rising from November to May. It causes a good re-action, and is more certain; and for ordinary practice in winter it is the best. A cold dripping sheet at any time of the day when fatigued is very refreshing. As I have before remarked, it allays feverishness, and is easily managed by putting the wet sheet on like a cloak, and with the hands out rubbing and drawing the sheet backwards and forwards over the back. I never have any assistance in taking dripping sheets, or drying, or putting on bandages; by performing the operation myself I sooner get re-action. I cannot speak too highly of the good and safe effects of the dripping sheet.

HOT PLATE.—I have a galvanized iron vessel, 4 feet square and 3 inches deep, with some cross-bars inside, dividing the space into parts 6 inches square, this is laid on the bath-room floor filled with hot water and a flannel pad over it for patients to stand upon when taking dripping sheets, and being dried after the shallow; the use of this is a luxury, but not necessary. The cross-bars are to strengthen the vessel to bear the weight of a person standing upon it; there is a screw plug on the surface, and one in the side, by which to fil and let out the water.

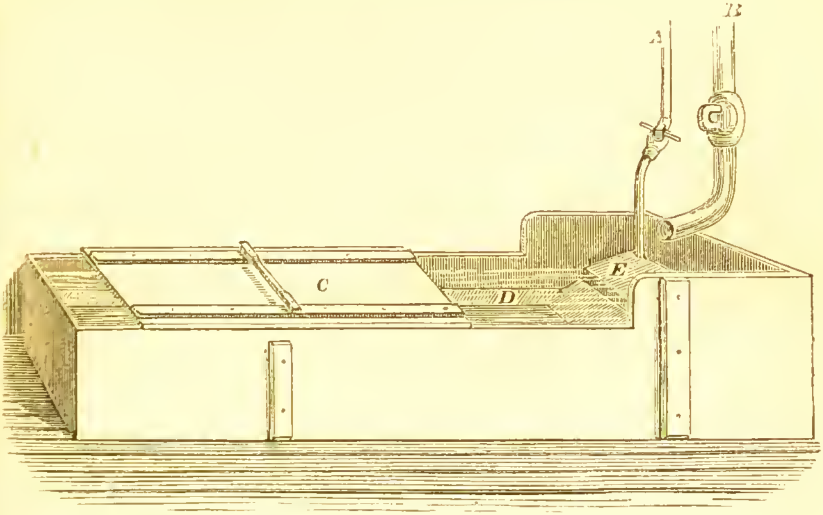
STOMACH PACK.—When the stomach is very irritable, it is best to lie in bed and remain perfectly quiet; taking no food, but sipping cold water; having a towel doubled and wrung out of cold water laid over the stomach, and over that a good thickness of flannel or blanket to preserve the animal heat. Re-wet the cloth every ten minutes, and take nothing but water until sickness is stopped, if even it last a day or two, as no harm will arise from abstinence from food, so long as the stomach is irritable. In some severe cases we have found this the only remedy.

SHALLOW BATH.—This is a very useful bath, and more



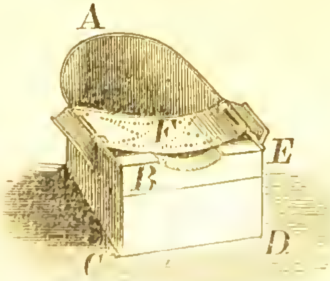
5 feet 6 inches long, 26 inches wide, 13 inches deep.

effective and tonic than dripping sheet. The bather lies down in it half filled with water, and rubs quickly the legs, arms, and body; or an attendant assists, if there be one. It is best for the bathers, if able, to use action in rubbing themselves well, as it aids the good effect of the bath. One or two gallons of cold water may be poured on the spine before coming out, but is not quite necessary.



WOOD SHALLOW BATH, such as I use at my Establishment and free Hospital, is made of one inch deal boards, grooved and tongued, not lined or painted. It holds water well, and a good deal of it, and there is more room for the bather to lie at ease and soap well. Outside measure, 6 feet 5 inches long, 27 inches wide, and 17 inches deep. E is a flat board, 4 inches broad, to lay the back of the head upon, and it slopes down into the bath to support the back. C is a loose cover, merely put on to avoid exposure of the person. A is a steam or hot water pipe, which is carried round the bottom of the bath under a board, for a hot bath. B is a $1\frac{1}{2}$ inch pipe brought to $1\frac{1}{4}$ inches, for a back douche, and to fill the bath. A plug at the corner lets out the water.

HEAD BATH. — An excellent application for soothing and cooling the head. The person lies down on the floor with a pillow under the top of the shoulder, and the back of the head laid on at F, which is a piece of perforated zinc, connected to the sides of the bath, by elastic straps the head is pressed down into the water put into the bath. Where there is much excitement of brain, the water should not be quite cold, and often renewed,

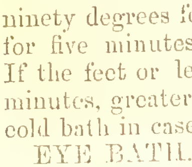


as it soon becomes warm. For extracting heat from the head, it may be used from twenty to thirty minutes at a time, and not unfrequently brings a soothing sleep while being applied. The forehead should be sponged at the time with the same water; or a cloth frequently re-wetted, and laid upon the forehead for a few minutes. A cold foot bath, after a head bath, is good for re-action.

The HEAD BATH is 10 inches wide at C D, 13 inches long at B A, and 6 inches deep inside. B is a reserve, 1 inch wide, with a loose cover, to hold any water that may slop over, and so keep it from running down the bath. A tap should be inserted into the reserve at E, so as to let water run through on pouring more in to keep the water cool; a round dish, three inches deep and twelve inches diameter, will do.

FOOT BATHS.—Walk about in cold water at a depth of five or six inches, or standing in a tub, stamping with the feet from five to ten minutes; then rub them dry and take exercise. I walk in the wet grass or snow, on the high road, barefoot, for half an hour or more, with advantage; and when I come to a brook, I take off my shoes and stockings, and after passing through the water put my stockings on again without drying the feet. No harm, but great benefit, would result from these practices being more generally adopted. The tight-fitting waterproof boots, with elastic tops, are highly injurious by keeping in perspiration. Foot baths are tonic, and very beneficial; they take away headache, and draw blood to the feet; and may be used by any, in ordinary health, without the least risk. If there be any affection of the heart, determination of blood to the head, or low power of reaction, have the water at ninety degrees for five minutes, then at sixty-five or seventy degrees for five minutes; this is derivative and soothing, and helps sleep. If the feet or legs be first put into hot mustard and water for ten minutes, greater beneficial effect will be produced by the use of the cold bath in cases of congestion of the brain.

EYE BATH.—Eye-glasses are sold at the druggists, the application of them is as follows. For weak sight without inflammation, fill the glasses with water 60 degrees and in a stooping position, to keep the water in. Then raise the head with the glasses fitting over the eye, and open the eye-lids to allow the water to come in contact with the eye-ball. Keep the glasses on five minutes, then change the water; and while changing let the eyes face the strongest light. Thus go on applying water in the same way five minutes longer, repeat this three or four times a day, after a few days use only cold water. If convenient, pack the forehead with a piece of calico wrung out of cold water, and oiled silk over during the application. Inflamed eyes treat as follows:—Use head-bath cold or rather tepid; foment the eyes and forehead for ten



minutes with hot flannel pads wrung out of water as hot as can be borne while using the head-bath, then pack the forehead as above with wet calico, and apply the glasses, with water 70 degrees to commence with for three minutes, the next three minutes 60, and then three minutes cold; and in changing the water open the eyes and face the light. When the inflammation is subdued, then treat the same as for weak eyes; for accidental injury apply the same.

The patient must not be alarmed at the eyes becoming much blood-shot by the use of the glasses at first; this is producing the desired effect by stimulating the circulation, and will subside in due time. At bed-time foment the eyes with hot water five minutes, then pack as above with wet calico over the forehead, and two pieces of damp spongio over the eyes for the night. The ordinary method of shading the light from weak or inflamed eyes is highly injurious, and often results in permanent injury. As inflammation of the eyes is often a secondary symptom, showing inflammatory action in the stomach or other viscera, diet and other precautions are absolutely necessary for recovery. Avoid all stimulants; adopt the diet recommended in this work, wearing body bandage; and take the usual cold or tepid dripping sheets, and sitting baths as for ordinary health. If there is much mucous inflammation shown by the red tongue, &c., more active general treatment will be required before the eyes can be restored to healthy action.

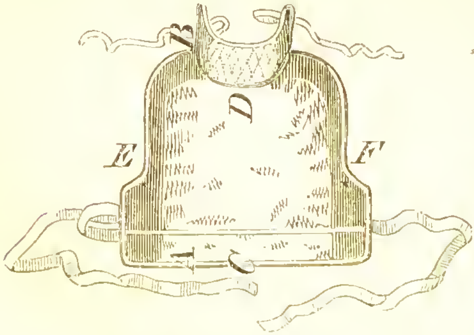
COLD FEET.—An invariably successful and perfectly safe remedy in all cases, is to put on a pair of cotton socks, wrung out of cold or tepid water, with a pair of thick lamb's wool over, and to sleep in them. Wash the feet in cold or tepid water on rising. We also apply cotton gloves wrung out of water, with dry woollen ones over, and in some cases wear them night and day; they draw circulation to the hands, to the relief of other parts.

BACK WASH.—The person sits on a board across the sitz bath, or a tub, in which is some cold water; the attendant takes a towel, dips it in the water, and throws it open on the shoulders and back, drawing it downwards, and keeps renewing it in the water; apply this for five or six minutes. It is very strengthening and refreshing to the back, and a very mild application; and in cases of head affection, have the feet in hot mustard and water during the operation.

BODY BANDAGE OR WET COMPRESS.—The ordinary material used is linen, but this, in many cases, remains cold, and is then injurious. We use coarse brown calico, two and a quarter yards long, being the common size, and some longer, and thirteen inches broad. One yard of it should be two thicknesses, one and a quarter one thickness, covered with oiled silk or thin mackintosh cloth. The double calico part, wrung out of water, wrap round the body, and then wrap the other part covered with the oiled silk or mackintosh over it. Or three yards of calico, two thicknesses, and thirteen inches wide, will answer: but the waterproof aids the good effect of the bandage.

The reason why bandages are only partially used at water establishments, thus causing great delay in restoring vital action, is owing to the imperfection of those used; they often really doing more harm than good; which will be the case if a feeling of warmth is not produced by them. Body bandages can be thrown off at any time without any substitute, and without any fear of taking cold.

The body bandage is of great importance, and very beneficial, in constipation of the bowels, liver, stomach, and affections of the kidneys, especially in pregnancy and internal irritation. It should be re-wetted morning, noon, and night, or oftener; if there be much heat, as it will have more effect. If there be inflammatory matter in the system, a crisis—rash or pimples will probably come out, and so produce a good effect, thus acting as a counter-irritant. When this is the case, and the rash becomes sore, or discharges, simply attend to the crisis treatment as in this book; and should it become hot in the night, re-wet it; morning and evening wash over the parts with warm water and brown soap. This bandage will not produce a crisis or rash in a healthy system; and it is only where there is inflammatory matter in the system, which is always dangerous its remaining in, that any crisis will be produced. It is very useful at all times, in soothing the stomach, bowels, liver, and kidneys; and may be worn by public speakers and ministers, on occasions of much exertion, with great benefit; however much the bandage is worn, no injury will arise. I wear it for weeks together when I have much work to go through; and never have any rash or crisis in consequence. It also tends to allay thirst, and is used in some stone quarries and iron foundries, where the work is hot, for this purpose, and for support to the back. In cases where much medicine has been taken, the stimulating effects of the baths and bandages throw it off in the crisis, upon the non-vital organs, the legs, arms, and surface of the body; and so entirely replace the vitiated tissue by new and healthy formation. Wherever there is disease in the system, there the crisis will show itself, relieving the parts most affected.*



13 in. from E to F, 10 in. from C to D, 14 in. from A to B—full size 6 in. longer, collar 14 in. long, 3 in. wide.

CHEST COMPRESS.—We use different kinds and sizes.—The shorter chest spongio-piline compress, with collar, is invaluable in all chest complaints, and bronchial affections, or of the lungs. The collar is made of two thicknesses of calico, covered with oiled silk, and quilted to keep it straight. The spongio should be bound with tape, and have two crossings of tape at the back, to keep it from stretching, and should be worn night and day until the complaint is removed. It will not weaken the chest; but, on the contrary, greatly soothe and bring external warmth and circulation; and so relieve the internal congestion. The collar is wrung out of cold or tepid water, and the spongio sprinkled or sponged with the same, but not to drip, or the compress will feel cold; and re-wetted morning, noon, and night. The spinal compress will be useful at the same time, as the apex of the lungs comes up to the point betwixt the shoulder and neck. The above chest compress we ordinarily use with a body bandage and spinal compress. Sometimes, however, the body bandage cannot be used for want of vital heat, and then we find the full-size spongio chest compress, which is merely six inches longer, to be the best. Either of these chest compresses, or the calico one described below, are excellent preservatives to wear in case of exposure to cold, or on occasions of public speaking, in winter, and may be thrown aside without danger of taking cold. The half chest calico compress is made of a similar shape, but instead of spongio, there is first calico, two thicknesses next the chest, then one thickness of flannel, and outside oiled silk, lined with one thickness of calico to strengthen the silk. Some persons will find the full-size calico compress lighter to wear, and to act on the bowels as well as the chest, if they can keep it warm; but it should be observed, that if *any bandage feel cold, it will do harm, rather than benefit.*

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* See Crisis Treatment.

WET PACK FOR THROAT.—Many a valuable life amongst the ministers of the gospel and public speakers would be preserved by the use of this compress, saving them from bronchial disease, or consumption, by occasionally wearing it, and packing the throat at night as follows:—Take a napkin, wring it out of cold water, fold in four lengthways, wrap it round the throat, and two yards of flannel over it, or a pair of lambs' wool drawers or flannel petticoat, if no flannel wrapper at hand; however often this is used, it will not injure or relax the throat. I always take the precaution of sleeping in it after public speaking. I have been instrumental in restoring and preserving many a valuable life by advising this application. It is well known that the majority of earnest ministers of the gospel and other public speakers become invalids, and are obliged to give up their work, from bronchitis and relaxation of the throat and uvula; packing the throat and using the respirator after sermons or lectures, would most effectually save them. I can speak from long personal experience. One point must be noticed, the flannel wrapper should be thick enough to keep a good warmth up; and in the morning sponge or wash the throat well with tepid water. In obstinate sore throat or quinsey, keep it on night and day, re-wetting once or twice in the night, and every half hour in the day-time. I have known bad cases cured in twenty-four hours. Spongio-piline* could be used in day-time, being less bulky, but there must be good heat kept up. Bath No. 82, two or three hours, followed by No. 81, six or eight hours, if internal swelling.

SPINAL SLAPPING.—This we find of great use in healthily stimulating the great nervous centres in the spine and brain. In cases of congestion of brain and general nervousness, let the patient sit on a board over the sitz bath either with or without the feet being placed in mustard and water, of 100 deg. heat. The attendant then dips the hands in cold mustard and water and applies it down the spine; gently and quickly slapping with the open hand, one hand following the other from the nape of the neck all the way down the spine; frequently dipping the hand in the mustard and water, the mustard not to be washed off, but the back wiped dry with a towel; the top of the spine should have extra rubbing. The whole operation to last from four to six minutes at a time.

WASHING OVER THE BOWELS.—In some obstinate cases of constipation of the bowels we order the bowels to be washed with hot soap and water and a flannel pad at bed-time for a few minutes; then to wipe the soap off and rub a little cod liver oil in for five minutes; and after put on a dry flannel two or three thicknesses and sleep in it. This we have found answer when other means have failed, and especially with those far advanced in life or weak; it should be done in bed. One lady, seventy-two years of age, came for liver complaint and long constipation, and who by having this application for some weeks, with slight bathing, got entirely well, and has since enjoyed excellent health.

RESPIRATOR.—This is a most useful invention, and may be used without any risk. It is of the utmost importance to every one going out of a warm room into a cold or damp atmosphere. If put on before leaving the warm room, a temperature of seventy or eighty degrees is breathed, which effectually prevents attacks of bronchitis, inflammation, or sore throat; and in cases of bronchial affections, I recommend its use during the night. I have seen and felt the most important benefit from this, as it is manifest there is risk either of inducing or increasing inflammatory action in the fine air-tubes and vessels of the lungs, by the sudden change of breathing a temperature one moment of seventy degrees, and the next of thirty or forty degrees, and sometimes far lower. Maw and Son's, of Aldersgate-street, London, I have found the best; price 5s. each. or post free for 5s. 4d.

COD LIVER OIL.—This I consider very beneficial where it can be taken to agree with the patient, but the large quantity almost invariably prescribed clogs the liver, and does more harm than good. One large teaspoonful well mixed in a wine-glass of cream, taken

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[*] Spongio-piline may be bought wholesale of G. Trimley, 41, Queen Street, Cheapside, London; and at most druggists.

immediately after breakfast, and after tea in the evening, I find a proper quantity.

SWEATING PROCESSES.—*Spirit Lamp, Vapour Bath, Gas jet, Hot Water Bath.* 90 *to* 104 *deg.;* Dry Blanket Pack, Hot Dripping Sheet, Foment Pack, Body and Towel Pack, Hot Sitz.

In all the above processes in *italics* it is more effectual to have the feet in hot water during the application, using the fomentation-can over a pad, both on the back and front of body, whilst it is wrapped in the blanket. In the others last named it is not so essential.

TONIC PROCESS.—Douche of various powers and length of time; cold dripping sheets, cold sitz, especially running sitz, together with cold spinal rubbings, and cold water poured down the spine, cold shallows and pail douches ; towel back wash whilst sitting over sitz.

SLIGHT TONICS.—Cold mustard and water foot and hand baths; cold and tepid head baths; cold wet towel rubbing, tepid shallows with cold pail douche, tepid sitz with the feet in mustard and tepid water; and cold spinal rubbings whilst sitting on a board over sitz, having cold water poured down the spine the while; cold back wash, running sitz 70 deg. for five minutes whilst the feet are in hot water.

The following are very modified applications of the above processes for very delicate patients:—

A very gentle vapour bath for five minutes, then throw a dripping sheet over the body before coming out of the vapour box. Usual sitz 90 deg. for five minutes, soaping the parts out of the water whilst the others are in, having the feet in hot water during the time. Then wipe over all the parts, feet also, with a cold wet cloth; and then rub dry. Chest-rubbing either with cold water, mustard and water, or cod liver oil, from three to five minutes, with the lower parts in tepid mustard and water, is good. Cold running sitz for two minutes without undressing; this bath is invaluable at any time for many female complaints. Soaping the whole frame over with a flannel pad and warm water, and then quickly sponge it off with cold, using very little water. Hot foot and hand bath for five minutes, then wipe them over with a wet cold cloth. Mustard and tepid foot and hand bath for five minutes, simply rubbing them dry and warm afterwards. Wet towel rubbing half and half; first doing the upper half of the body whilst in bed, and drying; then putting on the woollen vest, perform the same operation with the lower half of the body, dipping the towel in tepid water. Fomentation on the chest or bowels, warm, not hot; and then wiping over the parts fomented with a damp towel. Steaming any affected part of the body separately by means of the opening in vapour box; or by pan of hot water with hot bricks in, with the limbs placed on a narrow board over the pan, and a blanket over all. For nervous patients this steaming is very useful, if applied to the nape of neck for a short time, keeping the head well wetted during the process. Rubbing the nape of neck with the hand, and mustard and cold water for five minutes, whilst the feet are in tepid mustard and water, is a very soothing process for nervous patients. Pouring cold water over the nape of the neck for a few minutes is very refreshing and beneficial. Mustard poultices applied to the soles of the feet, the mustard not being permitted to touch the sides of the feet, may be kept on night and day, and though not much felt at the time, yet do much good by drawing down the blood from the head and promoting general circulation. Mustard poultices also applied to nape of neck, between the shoulders, on the windpipe and front of the neck, down the chest, on the pit of the stomach, and also on the region of the liver, are very useful remedies; but in the application of mustard the skin should not be suffered to break. Wet with dry socks when worn all night are very useful in producing healthy circulation. Cod liver oil is very generally useful when taken as before directed.

HOT DRIPPING SHEETS are very useful before the wet pack, in cases where there is low power of reaction. When coming home with wet clothes, or having been wet, and clothes dried on, a hot dripping sheet, followed by a cold dripping sheet, is a very mild and pleasant operation, and would always prevent cold being taken; or a cold dripping sheet alone would often restore the circulation.

FOMENTING PAD IN STEAMER.—In all cases, except of full habit, a flannel fomenting pad, wrung out of hot water, held to the stomach and bowels, whilst having a steamer, is very beneficial and agreeable. In cases of full habit, a towel wrung out of cold water, held to the stomach, is best.

FOMENT PACK.—Having had this year some very bad cases of stagnation of the vital powers, I have tried with great success what we call a fomenting pack, that is, in addition to the directions for wet pack described, wring a flannel fomenting pad out of hot water, and lay it under the shoulder and back, on the blanket, and another hot pad on the front of the body; then wrap up in the wet sheet. Next bring one side of the blanket over and put on the hot fomenting can, then the other side of the blanket and the mackintosh sheet, &c., as in wet pack, followed by same application as after wet pack.

TRUNK PACK AND TOWEL PACK.—Prepare mackintosh sheet and blanket as in wet pack, and have half wet sheet or towels to wrap the body in, leaving out the arms, and pack in a similar way. The lower part of the person need not be undressed for this, unless preferred.

SITZ BATH HOT PAN.—This is a pan twelve inches by fourteen. The bottom three inches deep made water tight, except a hole and plug to fill it with hot water. The sides raised above this three inches. A flannel pad, only one or two thicknesses, laid on dry, for the feet to rest upon when the person is using sitz bath, covering the feet over with a dry flannel, or altogether wrapping the feet in it. This will be better than putting the feet so often into mustard and water.

HOT WATER SITZ.—This, for many cases, is most useful. The cases in which we do not recommend it are piles, heart affection, full habit, determination of blood to the head, or spinal affections. In cases of sudden attack of cold at the chest, or of the lungs, or asthma, stomach complaint, cramp, &c., it is highly useful. Have the water 100 degrees, or more if it can be borne, sit in the bath with the feet out and in hot water, or on a hot pad. Have a fomenting pad dipped in the hot water, spread over the throat, chest, and bowels, and one over the back of the bath to lean the back upon. Keep the arms down in the water by the sides of the body, and throw a blanket over the person, except the head. The hot pad will be found most grateful to the chest and bowels. Remain in ten or fifteen minutes, but not so long if perspiration is excessive; then have a tepid or cold wash, and put on chest compress and body bandage, wetted as usual. The hot sitz will be found a very agreeable and beneficial bath, especially in winter, or in case of a chill or cold, and may be used at bed time, and take a cold dripping sheet after, or sponge over.

FLANNEL BODY BANDAGES AND CHEST COMPRESSES.—We now adopt, for delicate cases, a flannel end instead of calico to body bandage, the flannel end double. Wring the flannel end out of cold or tepid water thoroughly; unless it is well wrung, it will drip and be uncomfortable. This is a very important improvement; we have been able to get on with cases who could not even bear the calico bandage. Chest compresses, oiled silk, lined with flannel, and the flannel wetted, are very light and comfortable; still calico or spongio will sooner bring out crisis if there is inflammation.

MORNING WORSHIP IN OUR MARQUEE, AT LEA MILLS.

HADDON HALL, THE SEAT OF THE DUKE OF RUTLAND.

DIVISION IV.

APPLICATION OF HYDROPATHY TO DISEASE.

CASES.

No. 1.—It was my intention when first I thought of this work, to have given a larger number of cases, but experience in my establishment has convinced me that it will not be advisable to do so. So frequently have patients come to me with Dr. Gully's book, in which a great number of cases are inserted, and the applications described,—and said such a case was just their own—this feeling and that symptom was exactly described,—when in fact their case and the one described really bore no analogy. Except in giving some general idea how some are treated by our applications, I think it would only be liable to mislead patients by giving more particulars of cases. Still I believe these general directions will be serviceable where the cause of disease is easily ascertained. The development of disease varies so much in different sexes and constitutions, that when there is anything more than ordinary derangement of the health, none but practical observers can form a correct opinion of the causes of disease. I have seen much injury done to nervous patients by studying cases, and following the treatment laid down for them in books, without the requisite knowledge derived from practical observation.

OVERWORKING THE BRAIN AND NERVOUS SYSTEM. —There is a large class of diseases arising from this cause; and just now, whilst writing, the proprietor and manager of a popular country newspaper is consulting me about his state. He says that last night he got no sleep. his mind was running on a hundred subjects, and he had no control over it. To-day, of course, his nervous system is wearied and excited, with not much probability in the present state of his bodily health of having a better night. He has taken a short trip from home for a change. It will do him some good; and help him to carry on a little longer: meantime the lamp of life is burning doubly rapid, and consuming the frame twenty or thirty years sooner than God intended. On examining the case he informs me he has gone to his office on Friday morning at six o'clock, and stayed till Saturday afternoon, without rest. Now, surely if a man studies the nature of his frame, and the conditions of health, he will see this is a really reckless and destructive course, which no considerations can justify; and which, moreover, I believe to be really a trespass on God's laws and man's responsibility. How can such labour be compatible with the calm consciousness of the high mission God has given man to fulfil? And, besides, even the object which man aims at is lost, for if even wealth and an independency be gained, there is neither power nor life left to enjoy it.

I know it will be said by many, "I have no choice, I have an office in the counting-house, or in the shop, and must go through the work required, or resign my situation; and what can I do?" Alas! that this should be the case from the avarice of employers requiring such overwork from those employed, because others in the same line of business require it, and therefore having an idea that they must do the same to meet them in the market. I know cases, where the clerks and warehousemen, or shopmen, of wealthy professing Christians, who give largely to charities and the building of places of worship, have lost their lives from confinement, bad ventilation, and the every-day pressure on the nervous system, without proper means of complying with nature's laws, assisted by baths and due rest of the brain. I see such assistants drop off from the counting-house or such other places, and other young men step in from the country to be similarly used up. Let employers, and especially those who profess to be Christians, look to their responsibility in these matters. I have at this moment more than one or two in my recollection who have been cut off in the morning of life, leaving young widows with young children to struggle on the journey of life with the thousand difficulties that beset them; but their late husbands' rich employers still use up others, still give money to charities, still live in style with their liveried servants, and give good dinners. To such the Lord says, "Many shall say unto me in that day, Have we not prophesied in thy name, and in thy name cast out devils, and in thy name done many wonderful works? but I will profess unto you I never knew you, depart from me, ye workers of iniquity." I believe the standard by which the Lord judges will be found far different from that used by what is called religious society. He never approved of compounding in religious duties, by giving with one hand what has been wrung out of the bodies of servants by the other. I do not condemn all indiscriminately; for some, I believe, have not had their attention drawn to this important subject, and as I shall have to remark further on, even when the means are at hand, some are too indolent or careless to use them. I leave this to reach those whose minds will, I am sure, convict them, if they do not stifle their consciences, and turn to the customs and opinions of society for justification. Wretched delusion! if they do: for they know well the customs and laws of this world will not be allowed to be put in plea in that higher court, to which we are all hastening.

The first part of this little work shows the constitution of the bodily frame, and its motive powers; and the dependency of the organic part of our frame on the vis vita, or power of life for existence, which springs from the healthy state of the higher order of nerves called the spinal cerebral. Lower this power to a certain degree by over-work and improper or insufficient nourishment, and rest, and the breath of life, which the Creator has breathed into man, making him a living soul, is expelled from its earthly tenement: the dust returns to its parent earth, and the soul to God who gave it, to give an account of the deeds done in the body. Such is the feeble and transitory nature of the soul's tenancy in the body, that we see apparently from slight and silent and to us unseen causes, the connexion broken, and the tenant turned out with little notice; and how many spirits, from remediable causes, are compelled to dwell in shattered and miserable bodies the remainder of their sojourning in this mortal state. This should not be the case, nor would it be if mankind acted on the Christian principle of serving God, and fulfilling their high and noble mission.

First, teach mankind to know God and their great Mediator; then teach them the nature of the body in all its marvellous structure. Let them be impressed with the fact, not merely an idea, but the solemn and undeniable fact, that they are responsible for the use they make of their frame, and of the faculties it possesses, and which alone can be kept in a fit state to perform the grand mission it is charged with, by obeying the conditions of health. If employers did this, they would not themselves be using up this precious body for money or transitory and worthless honours; they would not require of their assistants to use up their noble faculties in their service, until they are become so benumbed that they have often to perform their services more like machines than spiritual beings.

I write this, from dear-bought experience, to show the necessity of attending to the bodily machine, if any comfort is to be enjoyed in its existence. For the mind, however highly endowed, is dependent for a deal of its happiness on the state of the corporeal part. For many years I worked fourteen to sixteen hours a-day, and often the night too; taking no precautions in the way of baths, and I never knew a day's health for twenty years. Now, however, by attention to diet and baths, I can go through as much labour with perfect ease and excellent health. I never have a holiday: my thousand workpeople, free hospitals, hydropathic establishment, writing tracts, and Sabbath lecturing, &c., forbid it; nevertheless I know real enjoyment, with quiet nerves, and a mind without any corroding care. I believe God's word—that all who serve him sincerely are his children, and that he will keep them from all evil and in perfect peace. The corroding care I leave to my Master, according to his command.

Having said this much, I will now endeavour to point out some remedies for preventing the distressing state of disordered nerves and functions of the body

If employers and assistants would be at the trouble to use a very simple plan of bathing, they would be amply repaid. First, employers should find the means, by appropriating a room or chamber for the purpose, with a few sitz baths, one or two shallow baths, a steamer, some sponges, and sheets. This book will show what is necessary for hydropathic baths (the expense of which is trifling), and I will gladly furnish the articles at cost price. I will also send an experienced bath-man, or attend myself, if possible, to give instructions in their use, if needed. Ten or fifteen minutes, or even less, would suffice for most of the baths. The body refreshed would soon repay the expense incurred, by rendering the individuals so much more capable of performing their duties with efficiency. I have been so convinced of its good policy, both as a duty and as profitable in a pecuniary point of view, that I have provided my workpeople with baths, and also a cooking-house and servants, who prepare their meals, and I supply Scotch oatmeal porridge with golden syrup or milk for fivepence per week; I also supply a pint of tea or coffee with sugar and milk at one halfpenny per pint, or they can make their own. I give my factory hands an additional half-hour each morning for religious worship, and for hearing any important events going on in the world. We all assemble (those on the premises number about 350) in a room in the winter, and in a marquee during the summer, from half-past eight to nine. The mind and body is refreshed,—time is given for reflection that we are made for nobler purposes than merely working for the support of the body; and that there is a state approaching in which there are no factories, no avaricious or unfeeling masters, nor any thoughtless or indifferent to the welfare of those around them, and where the factory hand may be found amongst the highest: for the apostle James says, "Hath not God chosen the poor of this world rich in faith, and heirs of the kingdom which he hath promised to them that love him?" Many a labourer or factory hand is now here numbered amongst the redeemed, and they shall shortly be translated to where the weary will not only find rest, but inconceivable happiness and for ever. "Be patient therefore, brethren, in well doing, unto the coming of the Lord. Behold, the husbandman waiteth for the precious fruit of the earth, and hath long patience for it; until he receive the early and latter rain. Be ye also patient; stablish your hearts; for the coming of the Lord draweth nigh;" and thank God, that all may come who will come and drink of the water of life freely.

Our daily summer morning services in the marquee amongst the beautiful scenery and surrounding woods will never be forgotten by those who have attended them, and long will they remember the glad chorus of the birds, warbling their morning songs in harmony with our own.

I believe most of our lives have been prolonged and made happier by these services. Even now the recollection of them in years gone by dwells on the mind with pleasure, and I hope we shall always continue them while we stay on earth. Every now and then one of our number departs from these earthly scenes, to those blessed regions we read so much of; and their happy spirits, I often think, may be present with us. The greater efficiency of the workpeople, by these relaxations, is beyond all doubt, and a feeling of family compact is produced, which greatly lessens the trials of labour.

On the score even of pecuniary profit I can recommend employers to give their assistants opportunity for these exercises; it would have, I am sure, an important effect on their characters and habits. Their over-wrought, wearied, and feverish frames want rest and enjoyment; and they too frequently seek relief in practices that aggravate the evil effects of fatigue they have undergone. The contrast with the baths, &c. as prescribed in this work, would soon be evidenced in the vivacity and cheerfulness of the workpeople. The system being in proper order, the blood would be well circulated, the hot skin relieved, the functionary action of the viscera kept up to a healthy standard, and increased powers of usefulness, with a good will to use them, would be the result; and further, the employer would first have the great satisfaction that he was acting as a steward ought to do towards those over whom God has given him charge; and secondly, he would find it the best policy to have his assistants as full of life as possible to aid him in his enterprises.

I have stated before, what plan I use; I however repeat that the simplest plan of baths where there is not much accommodation, is to have some water in a sitz in the bed-room overnight, on rising spread a mackintosh sheet on the floor to save slops; sit five minutes in the bath with legs out, with a blanket thrown entirely over the body, then have a cold dripping sheet, or washing sitz, or cold sponge; the dripping sheet alone is best for winter, and at all times least trouble, and generally most efficacious, and dry with a sheet, not with towels, as the body is too much exposed, and animal heat lost; if time, soap over with common yellow soap, and a small flannel pad; or a hot dripping sheet followed by a cold dripping sheet, or a five minutes vapour and cold dripping sheet or cold shallow, is very refreshing. A vapour followed by a cold dripping sheet or cold shallow may be taken with much benefit at eight or nine o'clock in the evening; a sitz bath five to ten minutes, 70 deg. in winter and cold in summer, before getting into bed, with the feet in hot water or without hot water, often relieves the head and gives sleep; but if suppers, tobacco, and alcoholic drinks, pastry, &c., are not totally discarded, no person can be in a safe state of health. I intend further on, to give a sketch of a room for bathers.

The use of the wet body bandage I resort to a good deal whenever I have any extra work or over-fatigue, I throw it off without any substitute, never taking cold by so doing, and however much it is worn, it will do no harm; this wet body bandage and sitz bath are my sheet anchor, when hard pressed with mental work, and does wonders without any possibility of harm: occasionally I wear the wet bandage through the night, in case of indigestion or cold, and a flannel wrapper over it.

HYDROPATHIC PRACTICE.—Hydropathic practice is too much understood and practised as a system of cold treatment; drinking large quantities of cold water, with all the hitherto strange methods of applying it in douches, wet sheets, and various modes, by which the body is not renovated and strengthened, but the vitality washed out of it. The "cold water cure," I repeat, as it has been and is now often practised, is an outrage on the true principles of hydropathy, by which the body is kept in health and life; and the exhibition of this ignorance by many Hydropathic Practitioners sets such of the medical profession as are unacquainted with the system very justly against it. They correctly judge that the application of merely cold water to the majority of the cases of their patients would only increase congestion in the parts, and thereby lower the power of the viscera to perform their functions. They hear of some absurd applications of cold water to attempt to rouse power where there is low vitality; and they judge, if a hydropathic practitioner will commit one blunder against all scientific and correct knowledge of the nature and functions of the human body, that he makes others; and so they condemn hydropathy and hydropathic doctors *in toto*.

Hydropathic practice is of recent introduction into this country, and in Germany too, where Priesnitz first accidentally came into note. Priesnitz was a peasant, and had no scientific education, and, what was a greater defect in him, he despised such education; and the result of this was that, with powerful means of restoration in his hands, which he used by trying their effects in cases without any sound reasons why such applications should succeed, he committed many errors. He tried the practice in some cases and succeeded; he tried the same in others, which not only did *not* succeed, but did injury or destroyed life. Priesnitz's was a system of experiments without a correct knowledge of the symptoms and causes of disease, or of the varieties of constitutional peculiarities. This is unjustifiable, for if a practitioner does not act upon principles deduced from a knowledge of the nature and action of the constituents of the human frame, he is a mere charlatan, attempting to cure disease. I never give a bath without duly considering the various organs or parts in the disease implicated; never as an experiment.

Hydropathic practice has been taken up by some who could not succeed in their medical profession; and who, consequently, were not the best men to bring a good stock of scientific knowledge of physiology and anatomy to bear upon the subject. Others, again, who have undoubted physiological acquirements of the first order, and are convinced of its efficacy, are overwhelmed with their practice; and it is utterly impossible, with their present plans of practice, to carry out the minute detail of the water cure as much as is required. The same care and judgment is as necessary in applying water as in compounding medicine, and understanding and watching, as a good physician does, the complications and phases of disease. Large establishments, where the charges are such as will afford to pay for scientifically educated assistants, should have such in proportion to the number of patients, and also sufficient apparatus and bath-men in proportion. In a hydropathic establishment, where the practice is properly carried on, there are so many manual operations that in reality it very much resembles in its processes a manufactory, with the proprietor, overlookers, and workmen. Moreover, to carry hydropathic practice out with success, it should be in a properly arranged and well-conducted establishment, and also be confined to the establishment. Rooms for workpeople, with their stock of flannel, spungio, calico, oil silk, tapes, ribbons, and patterns, for compresses, bandages, &c. Likewise tin, zinc, &c., for baths, &c., where articles can be made or altered on the spot, are almost as essential as bath-rooms and baths. Then "*the feeding the animals*"—as a physician, alluding to the patients, remarked to me, be could not condescend to do—is in this system as necessary as directing the baths. The clothing, also, is of the utmost importance to see to. I find delicate, cold-blooded patients, with cold feet and hands, come with their fashionable, thin clothing, and light cotton stockings on, in cold weather. *No treatment can succeed unless all these points are attended to.* Hydropathic therapeutics, scientifically speaking, or, in plain English, the hydropathic mode and principles of cure, are put before the public as a sound, hygienic, nature-restoring system of curing disease, and bringing the body into its normal or primitive state. Its professors discard all attempts to bring the body into its proper state by the forcing or deadening system of drugs, blistering, setons, bleeding, and the thousand other forms of doctoring, by which mankind have been tortured and slaughtered for generations. There certainly is no lack of minute and elaborate methods employed in ordinary medical practice as to these matters, but often a total disregard to diet, clothing, and habits. Now, if the hydropathic physician stands upon the punctilios of his profession, and declines, as one who offered to join me did, to have anything to do with the unprofessional and common employment of seeing personally to the application of his remedies, in the shape of baths, bandages, food, clothing, and habits of life, it is impossible he can do justice to his patients; and until hydropathic practice is studied in the bath-house, and looked upon by the practitioner as an office requiring the most particular and personal attention to the manual processes, or as a superintendent over his assistants, he will not bring the system, in its wonderful health-restoring principles, in its true light before the public. The practice of giving baths at private lodging, by bath-attendants going their rounds from one house to another, and the doctor only seeing the patients perhaps once a-week, is utterly unlikely to give a patient a fair opportunity of cure. They cannot have proper bath apparatus, nor the attendance they ought to have. In the simple matter of giving a dripping sheet, the patient is often made to stand in the cold water in the bath, while it is given, to save trouble and slops on the floor; this is bad; or the sheet is partially wrung out, which makes it less effective. A bath may not have suited the patient,—there is no bath-attendant to refer to, nor the requisite quantity of water. I should not dare to prescribe baths under such circumstances, except to those who merely require home treatment. I saw a case in point when on a visit to an establishment a short time since. I was consulted by a friend, whose sister, a delicate lady about twenty-one, with but little blood in her body, had been ordered to have a wet pack daily at her lodgings. They had to rub her for hours after the pack, to get circulation; and from the time of having the cold wet pack one day, to the one next day, she was never warm; yet the patient and attendant thought it must be persisted in, as it had been prescribed. This was highly dangerous in this case. The attendant had no machine even to wring out the cold wet linen sheet, and the doctor was only to be seen once or twice a-week, and the week I was there he did not see the patient once. When he did see her, he ordered the pack only every other day; the same effects were produced, and packing was stopped. The lady remained there three months, at a heavy expense, and returned home rather worse than better. No wonder her medical man at home denounced such imposition and ignorance in attempting to cure disease. The husband of a lady has since come from near London to consult me on his wife's case: she, too, has been at the "*cold water cure*." It is a case of severe chronic rheumatism, making her a cripple. Nothing but cold water has been applied for ten weeks, at an expense of £40, and she is worse, and no wonder. Whenever one of my patients does not become warm in a pack, or after a cold sheet or any cold bath, does not get reaction, a vapour bath is given, or hot and cold dripping sheets, and packing stopped until there is more power. It is not safe to leave a patient in pack without an attendant near. My packing, except in especial cases, which are always properly attended, is done in the bath-house, where attendants are always by, and is so contrived that it is quite private. My patients can converse while they are in pack, and nervous feelings are prevented. To many it is a very formidable operation to be bound up fast in sheets without power to extricate themselves; and great danger may result to nervous persons by being left alone.

It is really doing the public injustice in serious cases by undertaking them at lodgings, or where they cannot have experienced bath-attendants to resort to any hour, day or night. I am very cautious in giving first packs in delicate cases, and in all I have the wet sheets wrung out by a proper machine, and I use coarse cotton sheets, not linen; and wrap the legs, to the knees, in a dry blanket, with a mackintosh sheet underneath for packing, and a chest-can with hot water, as described. Where there are a large number of patients, the proprietor or conductor should have well-paid and properly educated assistants in proportion to the number. The whole bathing processes should go on under one roof, and this would easily and with little expense be done on the plan of my establishment. In one of my bath-rooms—95 feet long by 21 wide—we give over two hundred baths per day, including packs, fomentations, shallows, washing sitz, and the various other processes. It is warmed by steam and hot-water pipes, and there is not the least effluvia in the room, from its being well ventilated. The floor is tiled, with wood grates, so as to be dry for walking upon with the bare feet, and, by allowing the water to run off, can be perfectly cleansed. The packing beds are emptied occasionally, and the contents renewed. Thus the effluvia from the person, which would be retained in the bed, is removed; and the blankets and sheets should be well washed frequently. Persons should never sleep in the same beds that wet packing has been performed in.

I make no pretensions to the knowledge of physicians who have gone through the dissecting-room and the usual laborious curriculum of medical training; but I can successfully compete with them in curing, and that on sound and certain principles, as the state of my establishment and the testimony of numbers who have before tried hydropathy in vain for cure testify. Few physicians will condescend to attend to the minutiæ I name as absolutely requisite for carrying out this practice as it ought to be with justice to the patients. I have been trained to business habits in my manufactory; I have to see personally into the minutiæ of every operation, acting on known principles; and I do not consider for a moment it would be compromising my position as a master, by even seeing to the state of the floors, the dirt and grease, and the ventilation of my factory, for I know I could not long keep the lead in my branch of business, were I not to see to these matters of detail, as well as talking with my bankers and wool-merchants as to the prospects of the money and wool markets. Far from despising scientific knowledge, I have considered it to be my duty to read and study physiological works every hour I could spare for a long period, and also to keep up with new works published on the nature of disease, &c.

I hope to see hydropathic practitioners with high physiological and anatomical knowledge content with some thousands per annum, and spending the surplus above in engaging young surgeons and physicians to help them, in proportion to the number of patients. Let them then, with their assistants, hold a cabinet council every other day, and compare notes, and in any critical cases every day. This plan would soon put hydropathy in the place it ought to occupy in the estimation of the public.

RHEUMATISM.—This is a universal complaint, I cannot call it disease, but a disorder of the nutritive or organic system. By some it is considered to rest merely in the blood. Others, and I think with more correctness, believe the cause of pain, inflammation, and swelling, is owing to the sheaths of the muscles and the sheaths of the nerves wanting the required serum, derived from the blood, which is necessary to lubricate the sheaths of the muscles and nerves, allowing them to move easily and freely in these sheaths. Thus any mode of living, or habits of life, or any means by which the blood is impoverished, prevents the supply of this necessary serum to the sheaths, (as this serum can only be formed from the blood,) and the muscles and nerves consequently move in comparatively or altogether dry sheaths; which soon produces pain and inflammation: and eventually, if not relieved, destroys the vitality of the sheaths altogether, and sets the limbs fast. In all my practice in rheumatism, I have acted on the principle of correcting the blood, and have good reason to believe it a rational one, from the cures I have seen by treating it as only a disorder arising from impoverished blood and lowered vitality. I apply steam, calico and spongio bandages, and hot and cold baths, both large and small douches to the parts affected, but not with any expectation of curing unless, at the same time, I can get the tongue clean, and the stomach and bowels in good order, by the means I elsewhere prescribe. Rheumatism will never be cured while the tongue is red or furred, showing chronic inflammatory action in the mucous membrane lining the stomach, liver, and bowels.

In rheumatism, the first essential point to attend to is the state of the stomach; and to begin a strict system of dieting, discarding tobacco in any form, for this is the primary cause of the crippled state of thousands by the double power for mischief it contains in poisoning the blood, and lowering the vitality of the nervous system by its narcotic power; then all ale, porter, wine, or spirits, which only increase the inflammatory action already so troublesome; next, taking but little or no flesh meat until the tongue is in a nearly natural state: all condiments are bad in these cases, as pepper, mustard, or acids. The simple diet recommended in this book, with the hot soaping and hot and cold dripping sheets, fomenting pack, or usual wet pack, each followed by tepid dripping sheet, or tepid shallow, and not by quite cold applications, spirit lamp, followed by tepid dripping sheet. Hot water sitz bath. Pad before and behind, and feet in hot water, followed by tepid sponge over, or tepid dripping sheet.

The application of cold water to any rheumatic part will only increase the inflammation; cold water should not be applied until pain is gone, and then may be used to strengthen; wear the wet body bandage night and day, taking care it is made warm by adding a flannel wrapper.

For rheumatic fever, fomenting packs and common wet pack, steam bath, and tepid sheet, and once a day a hot and tepid dripping sheet, a spirit lamp and tepid sheet twice a week, a hot washing and soaping sitz, or hot sitz, with flannel pad before and behind, and feet in hot mustard, fifteen minutes; wet body bandage, with flannel wrapper over, night and day, the calico end of the bandage wrung out of tepid water every two hours and well washed; hot mustard foot and hand bath ten minutes. These are the applications we use; they must be regulated by the strength of the patient, and the severity of the attack: free perspiration must be produced; and if it is difficult, let the patient be put in hot shallow ten minutes, and then have spirit lamp. The apparent lowness of the patient produced by these sweating processes must not alarm. I have never known a case die, or be injured, or not entirely recover. If stimulants or flesh meat are given to keep up strength, the fever will inevitably return. Sleep in cotton socks wrung out of tepid water, and lamb's wool over. Bandage any parts affected with wet strips of calico, well wrung out, with mackintosh and flannel over to keep in the heat. Spongio piline will keep warm when calico will not. The more the limbs are exercised while there is any rheumatism, the worse they will become: the muscles and nerves wanting vitality, and working in comparatively or altogether dry sheaths, gives great pain.

From the theory I take for the most correct one, as to the cause of rheumatism, it will be very evident that blistering, which weakens the system, and heating lotions, which increase inflammation, but neither of which applications improve the quality of the blood, must be injurious; and they will be found, in every case, to be so. I have had scores of cases which have been seriously injured by these applications, and by them some have been made cripples for life. I have had many desperate cases, where injury has been the effect of such applications; and although some have yielded to the treatment, the majority of these patients have had the vitality so destroyed in the parts, that I could only tell them theirs were hopeless cases, as to their bodily state. Heating stimulating medicines, or heating lotions and blistering, are the standard medical practice, according to the code laid down for cure by the Surgeons' Hall Examiners; and so all doctors, who have qualified there, must abide thereby, although I challenge them to produce a case of radical cure, or one in which the ordinary practice has not done injury. Even scarifying is sometimes practised; for a labourer sent to me by a clergyman had had his knees *fired* by a surgeon, as is usually done on horses, and the poor fellow's knees are made stiff for life; this is not the only instance I have had of burning the parts affected.

SCIATICA, or rheumatism in the sciatic nerve, which takes its rise in the hip, and runs down the back of the thigh and leg to the foot.* Great numbers are cripples from this cause, and not a few have been made so by the unnatural methods used by surgeons for their cure. Nothing but restoring the nutritive powers by baths and packing can ever restore life and power to the limb; and blistering, lotions, or scarifying only aggravate the disease and increase the inflammation; and not unfrequently causes thickening of the cartilage in the thigh joint, and thrusts the bone out of the cup, putting the limb what is called, out of joint,—never to be got in again. The applications named in the preceding article are what we use. I have just heard of a notable plan invented by an Irish surgeon for the relief of Sciatica, which is, to introduce a hollow probe through the muscles to the nerve, and apply morphia. This is only the usual practice of attempting to benumb pain by drugs, and treating the poor body as a bad carpenter would do a box out of repair; unfortunately, however, for the poor body, in such hands, it has highly sensitive nerves and a wonderful network of blood-vessels, which will not bear similar treatment.

Several years since, I had a very remarkable case of rheumatism in a patient. I had little expectation of seeing him even relieved His case was declared entirely hopeless of either cure or mitigation, by his doctors; and they were honest in telling him so. For on the principle of allopathic treatment, (which is grounded on forcing or rousing weak organs to act, by means of stimulants and counter-irritants, or quieting feverish or inflammatory action by narcotics,) there could be no prospect of any good result with a frame worn down to a skeleton, and the side of the head actually resting on the shoulder, from the muscles and nerves of the neck and upper part of the spine having given way, and become unequal to its support. He had been in this miserable state a considerable period; and a short time previous to his arrival at our establishment, had been in bed three months in one position, not daring to stir, from the excruciating pain it caused in the spine. He was about twenty-eight years of age, always of regular habits, with a healthy constitution, but had been compelled, in attending to his business as a draper, to stand in a shop between currents of air, in cold weather, and without any fire. These causes brought on indigestion, which, of course, weakened the vis vitæ, or power of life. The frame then began to feel the effects. The cold draughts acted upon the shoulders and neck, causing rheumatism; this went on until all the frame sympathized, and he could no longer attend to his duties. The usual plans were tried to make the machine perform its offices, but it could not be made to act. It would only answer to mild nursing, and attention to the natural nutritive powers, in the shape of rest and warmth, plain but nutritive diet, mild water and steam application to the skin, and damp spongio kept night and day on the parts affected, which acted as a constant poultice. Had these plans been tried first, instead of scourging the poor body with drugs, blisters, and lotions, I have no doubt the patient would have soon been restored; for in the desperate state above described, by God's blessing on our treatment, he was entirely cured. When he first came to my Establishment, whenever he had to move, he supported his chin with his right hand, while with the left he raised his head, causing exquisite pain in the spine, every time bringing out perspiration over the frame. He is now in excellent health.

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* See engraving p. 474.

RINGWORM is a skin disease. Keep the parts affected damp by wearing a piece of wetted spongio piline over them, or wetted calico, spongio over; general treatment as follows:—On rising, have No. 13; and afterwards a shallow, 80 degrees; or sponge over; or No. 14. Forenoon: well soap the head with hot soap and water, and then sponge, or pour over it tepid water. Afternoon, or bed-time: a gentle vapour bath, and tepid shallow: or sponge over, or tepid dripping sheet after foment pack. If the parts affected are well soaped over every time the spongio is damped, will accelerate the cure; wear the wet body bandage No. 163, during the night, and a dry flannel during the day; abstain from all stimulants, and from flesh meat or coffee until well.

ITCH.—This troublesome disease is soonest cured by the application of sulphur ointment all over the body, and before it is renewed, have a thorough hot soaping with common yellow soap; about two dressings is sufficient, and any druggist will supply the ointment: the disease is easily communicated by the living animalculi, which burrow under the skin. When the itch is removed, vapour baths, spirit lamp, a hot soaping shallow, will prevent a return; care should be taken to have any garments worn thoroughly purified.

HEADACHE, or heat in the head; wash the head in very hot soap and water, then sponge with tepid water, and put on head bandage, No. 215 (in bath list).

ELBOW BATH is very useful in any inflammatory action in the hand, arm, or shoulder; put the elbow into a vessel about six inches deep, and keep it in five minutes at a time, and repeat four or five times during the day; if the inflammation is in the arm, the water must be tepid; if in the hand or shoulder, cold; as it is not proper to put every inflamed part in cold water.

NERVOUS IRRITATION FROM BAD HABITS, frequently contracted at school, and continued afterwards, often making the frame a wreck before the individual is aware of the baneful consequence. In these cases there is always a great sensitiveness to cold, and severe cold water treatment will further irritate the nervous system. On rising, have sitz, 70 degrees, six minutes; and, if convenient, have spinal rubbing while feet are in hot water, or on dry blanket, and then a hot dripping sheet, followed by a cold dripping sheet; but if this is not convenient, have the six minutes 70 degrees sitz, and then tepid dripping sheet in winter, and cold in summer, or No. 95; after any discharge, wear body bandage

No. 163, during the day, or if that is not warm, use No. 169 or 173 with a dry flannel bandage over. Thick clothing in winter and spring is necessary until the nerves are strengthened; tight trowsers injurious, also sitting on soft cushions; much walking not advisable, carriage exercise better. Wear hair very short, at the back of the head especially, and sleep on hard pillow. No. 24 by a healthy man, very good, and No. 25 occasionally. Dry flannel body bandage to sleep in; put it round waist over night-gown; forenoon or noon, 70 degrees sitz, ten minutes, lowered to cold one minute, and hot mustard hand and foot bath. No. 36¼ good, 131½ often as convenient, followed by 154, 65 degrees is very good, or either separately. At bedtime, sitz 70 degrees, six or eight minutes, and sponge back of head: all stimulants bad, and coffee or tobacco. Very moderate flesh meat. No. 186, flannel damped, good; No. 112, 114, 121, all good, also cold spouting bottom of spine; No. 106, very serviceable.

EYE, INFLAMMATION of, — from some particles of sand or dust accidentally coming in contact. Use No. 131½, and whilst head is in the bath, foment the eye with hot water, and a flannel pad, often renewing the pad, to have it as hot as can be borne; go on with this fifteen or twenty minutes, then No. 201 five minutes, with feet in hot mustard and water; then a small piece of spongio piline wetted and put over the eye, and a handkerchief over to keep it on: repeat all this several times per day, till the inflammation is subdued. As soon as most of the inflammation is reduced, omit the piece of spongio on the eye, as it should be kept from the light as little as possible, and continue the other treatment till all inflammation is subdued; then 202 every day to strengthen the eye.

CONSUMPTION, DISEASE OF THE LUNGS.—This never takes place except there is first what is commonly called a bad stomach, or bad digestion. The lungs are intersected by thousands of minute air tubes, the interior surface of which is calculated at 30,000 square inches. These tubes are also lined with minute air vessels, which make the body of the lungs almost a mass of these pipes and air vessels. The tissue or flesh lining the cavity in which they lie is of a very fine structure; differing from the coarser fibre of the flesh, or what is more properly termed muscle, of the other parts of the body. Now it will easily be understood that where so much delicate machinery is at work, and of so fine a structure, the materials must be good and refined to renew this structure; which is every day wasting and being replaced by new formation, as in every other part of the body. Persons of weak digestion, or from poor or insufficient food, make of course impure blood. Out of this bad blood the fine structure of the lungs has to be made; nature applies it, tries it, and finds it unfit for the purpose, and then tries to expel this morbid useless matter from the lungs by forming tubercles and abscesses, and so throwing it off, which ultimately destroy those life-giving organs. The formation of abscesses and tubercles is an effort of nature to throw off disease; and in thousands of cases a cure is effected by them. The parts of the lungs where these operations of nature have taken place are by them destroyed, but a cicatrix is formed where the disease has been: and which makes good the damage by cutting short the tubes around the seat of tubercle and abscess; but by this process the extent of the tubes and capacity of taking in air is diminished; and such subjects in whom this has taken place will not have the power of lungs they had previously; nevertheless, thousands go through life with good health and live to an old age, who have thus had their lungs seriously diseased. Out of 150 bodies dissected in the Hospital at Paris, 125 showed that disease of the lungs had existed, were cured, and the persons had died from other causes.

It is true many suffer from indigestion who escape disease of the lungs. Indigestion brings on chronic inflammation of the mucous lining of the stomach, bowels, and liver; this the system tries to throw off on to the non-vital parts of the body, as before noticed, in the form of boils, rash, shingles, abscess; and many have been saved from death by a broken limb drawing the inflammatory action from the more vital parts. But when the system is no longer able to throw off this inflammatory matter outwardly on the body and limbs, the weakest vital organs then give way; and the inflammatory action concentrates on the weakest parts, and serious disease sets in. Any who inherit constitutionally weak lungs are, of course, the most liable to consumption. Poor food, confinement in badly ventilated places, over-work, &c., bring on indigestion, fever, then cough; and by the red tongue showing the mucous inflammation is extending to the air tubes. In the present state of medical knowledge and practice a fatal crisis is very often accelerated by the application of blisters, and preparation of cantharides, and as counter-irritants applied to the surface of the chest, which are taken up by the absorbents and carried into the blood, and to the already irritated and inflamed lungs; besides draining away vitality when the blister "*rises.*" Good nourishing living is prescribed often without directions as to what is proper. Flesh-meat, and not unfrequently porter, ale, or wine, which only increase the inflammatory action, are often ordered. Actual disease once set in in cases of naturally weak lungs, is rarely indeed removed by the unnatural methods adopted for cure.

Whenever the tongue is red and swollen, white, or furred, persons with weak lungs should immediately take precautions before disease commences; and the only precautions they can take, to be of use, is not physic, blisters, &c., but farinaceous and vegetable diet, good air, rest and mild applications of water treatment. Of homœopathic remedies I can give no opinion from not having studied them; and therefore I neither recommend nor condemn them. When cough and expectoration have set in, the disease has commenced; but generally in such a form that with care and attention recovery may be expected. But if, in this stage, the lungs are exposed to severe cold, or to the influence of stimulating food or liquids, fuel is being supplied to the fire; and the vis vitæ, or power of life, is fairly or rather unfairly beaten down. In taking in the air each time we breathe, an average power equal to a pressure of 4 cwt. is exercised, and in discharging it to that of 3 cwt. Now when the air tubes are inflamed, the effect of this action to the lungs may be supposed; and when we consider that the lungs cannot for one minute be at rest while life lasts, it is only a matter of astonishment their destruction is not far more rapid than we see to be the case.

BRONCHITIS is very common, and persons with naturally strong lungs are often affected with it, and with them, by a little attention, the hacking short cough may be got rid of. But this is not so easily done by persons with weak lungs, for they are often unaware of the danger, in their case going on to actual disease of the lungs, or what is commonly termed consumption.

The term bronchitis does not often alarm persons with weak lungs, from their supposing it is altogether different from consumption; they not being aware that bronchitis is inflammation of the air tubes which intersect the lungs; and which inflammation, if continued, produces matter, nature's remedy, to throw off the inflammation when it cannot be thrown off otherwise. But if this suppuration of the air tubes of the lungs goes on, it is easily seen that the body of the lungs cannot long resist the influence of the morbid matter, and decomposition and change of the structure must be the consequence. Many physiological terms are very inapplicable and vague, but having long been in use and adopted in works on these subjects, it is not easy to change them. Consumption is a term generally understood, and therefore I use it, although it does not give a definite idea of any particular disease.

Bronchitis, or inflammation of the wind-pipe, the first large tube leading from the throat into the lungs, and of the air tubes branching from it, is very common, and may arise from a slight cold, from loud and long speaking or singing, or from the inflammatory state of the stomach. When it is only in the upper part of the wind-pipe, a little care soon cures and restores the ciliated membrane which has been destroyed. This ciliated membrane* performs a very important office, it is on the surface of the lining of the wind-pipe, and in all the bronchial tubes except the most minute terminations. I can compare it the most easily to a fine downy surface, and is spread in a mucous network over the parts. This fine hair-like process is continually moving, and will show motion for hours when taken out of the body and put in warm mucilage. The office it performs is to keep the mucus, or slimy lining of the membrane, moving, so that the mucus does not stagnate, and become offensive to the delicate cellular tissue and nerves on which it rests; for the very existence of the body depends on keeping all the material changed and renewed.

Inflammation of the top of the windpipe displaces this cilia; and the mucus then not being moved away, as it becomes deteriorated, irritates the cellular tissue and nerves on which it rests, and an attempt is made by cough to do, what in health is accomplished by the cilia. This cilia on the top of the windpipe can be coughed up by a strong effort, and examined under a microscope. Now the cough which proceeds from the upper part of the windpipe can only be cured by the cilia being replaced; and to this end packing the throat with a wet wrung-out cloth and flannel over night and day, or damp spongio in day-time, is the most effectual method of drawing out inflammation, and promoting a restoration of the parts. When the irritation is great, we use a mustard plaister on the throat, and repeat it. This, being a simple vegetable substance, can never do any harm. If the slight bronchial affection is neglected, the irritation and inflammation creep down the tubes into the lungs, and then become serious. I once had a serious attack from over-fatigue and Sabbath services in my tent and in the open air. I expectorated a pint of matter in the twenty-four hours, the attack having gone on from acute, to chronic bronchitis, and unless this had been stopped, disease of the body of the lungs must soon have taken place. The remedy I used was to keep the throat red with mustard plaister; packing the throat at night with wrung-out napkin and flannel over, and washing the throat and chest with tepid water on rising. I wore a half-chest spongio compress with collar, and a calico and mackintosh spinal compress night and day, damping them twice a day; wearing body bandage from rising to noon only. On rising I had a soaping and wash over with water nearly cold, standing in hot water. In the forenoon a fomentation for twenty minutes, not very hot, wiping chest after with wrung-out towel. In the afternoon a sitz bath 70 deg. for ten minutes, having feet in 105 deg. mustard and water. A towel body pack every other day, instead of fomentation. This continued for ten days, and then I reduced the bathing, but still continuing chest and spinal compress until cough was entirely gone. I found it necessary to go to the heights of Malvern for change of air. Our private residence is low, and in the midst of large woods; and as I could not attend to the duties of my own establishment, it was better to be away, as perfect rest was necessary. I abstained from flesh meat and all stimulants; and, with the blessing of God, I was well in three weeks after I left home. Formerly I had these attacks, and the weakening effects of blistering and physic kept me in a weak state for a considerable time.

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* See engraving p. 414

If the attack is in cold weather, it is necessary either to go to a warm climate—as Torquay or Hastings—or to keep in doors, wearing a respirator if at all exposed to the cold air, even in the passages, as cold air will of course irritate the parts. The bedroom should be aired; and I found sleeping in the respirator very beneficial. When bronchial inflammation has gone on, from discharging light-coloured, whitish matter, to dark or green, and slimy slough, sometimes streaked with blood, then the disease has attacked the body of the lungs, and is called pulmonary consumption.

CHRONIC PULMONARY CONSUMPTION.—When this has taken place, and the body of the lungs are suppurating, or tubercles forming, we use simply the half-chest spongio and spinal compress, as above; soaping the body over every morning with warm soap and water, and then giving a tepid wash down, standing in warm water. But if the disease is advanced, then, without rising out of bed, the upper half of the body is wiped over with a towel perfectly wrung out of tepid water; then, covering the upper part, have the same application to the lower part; soaping first is very necessary where there is perspiration. We have had some apparently hopeless cases of consumption which have entirely recovered; and in all cases our treatment will give relief and prolong life Consumption takes place from various causes, and the remedies must be applied accordingly. Very frequently it is produced by a single exposure to cold, or going from a heated place to cold, or sitting in draughts, or sleeping with wet clothes on; and if the lungs are at all weak, inflammation of the body of the lungs takes place at once without bronchial affection, generally even without any cough. The darting pains are felt in the chest, and soon it is difficult to breathe.

In all these cases of sudden attacks of inflammation, our mild water treatment does wonders in a very short time. The fomenting can, with fomenting pad, should be immediately applied for half-an-hour as hot as can be borne: then towel pack, with towels wrung out of warm water, lying in pack three-quarters of an hour; and then to have a shallow bath 86 deg. one minute, well rubbing the body while in the bath. If the pain still continue, repeat the fomentation and pack until the pain is subdued; then put on full-sized spongio chest compress damped with hot water, and keep it on for a few days, or a week, until the attack has subsided. The half-chest spongio will then be sufficient; and this should be continued for several weeks, night and day, damping it morning and evening. If spongio is not at hand, the chest compress of calico, with flannel, is enough to keep in the warmth. After the first attack has subsided, in the morning have a warm soaping over, and wipe the upper part of the body with towel partially wrung out of tepid water; keep in bed, and as quiet as possible for several days. If the pain returns, resort to the towel pack or fomentation. After a few days, if there is no pain on breathing, have a soaping on rising, and tepid sponging down, standing in hot water; putting on damp chest and spinal compresses, and still keeping quiet. In the afternoon have a sitz 86 deg. for ten minutes, keeping a hot pad to the chest while in. On going to bed, have feet in 105 deg. mustard and water three minutes, then wipe the feet with a damped cold cloth; and put on a pair of cotton socks, having the soles of the socks wrung out of tepid water, and a pair of dry lambs'-wool over them. Avoid flesh meat and all stimulants, and coffee or condiments. Avoid milk as a beverage at first, it is too heavy; for the first few days a very small quantity of food is best, and that of a light kind. As the person recovers, a dripping sheet nearly cold, standing on a hot pad, or in hot water, with a hot pad to the chest, or a dry one while having the dripping sheet, may be applied on rising; and the sitz bath at 85 deg. without hot pad in the afternoon or evening. Great caution, however, must be used in not stimulating the circulation too much, either by hot or cold application, until the circulation is restored. When the inflammation is on, the hotter the fomentation the better, but not so when the pain is subdued, as it would weaken and irritate. The respirator is necessary to be used in going out into the cold or damp until convalescent, and if the bedroom is cold, during night also. The great points to attend to in the first stage are to consider the delicate structure that is in a state of inflammation, and when that is subdued, the very weakened state of the parts that will not bear the changes they can sustain when in health: neglect of these points is running great risk.

Inflammation in the lungs is dangerous and difficult to subdue; not only from their fine structure, but from being constantly in motion and incessantly making such powerful efforts for the oxygenising the blood, and throwing off morbid matter.

We continually have cases coming to us in which permanent injury has been done, and often hopeless of cure, from the delicacy and office of the lungs not being recognised. One such bad case has recently come to our free hospital, the effect of the doctor's treatment. The patient has been a cook, of naturally good constitution, and healthy family. Exposure to sudden transitions from heat to cold, and the stomach out of order, prepared the system for a crisis, which was sure to come, and only wanted the occurrence of having an extra dinner party to provide for to bring it on. After a hard day's work, the system, worn down, inflammation commenced, and breathing became difficult. The usual plan of bleeding with leeches in the side, and with lancet in the arm, was adopted, aftewards blisters, calomel, were used, and everything done to lower the circulation, and the power of life too. This was the poor woman's death-warrant, she could not get up her lost vitality; and now after two years' illness, during which time physic has been freely tried to give nutrition and power to the dilapidated frame, she is fast on her way to the grave, to which the same unnatural, unscientific, ignorant system of attempting to restore failing nature has, and is now, sending thousands by a painful cruel process. Surely the nature of this wonderful and delicate structure, and the principles of nutrition, by which it is upheld, will be better understood.

The case of the present house steward of my Hydropathic Establishment is a triumph of hydropathy. His physician, after having tried his case and failed, sent him down from London to breathe his native air. He had hectic fever, with cough and expectoration, great weakness, and was in much despondency. I applied our soothing, comforting system to his wasted frame, and with God's blessing, in six months he was able to engage a situation at the Crystal Palace works, standing its out-door duties in March without injury, and from that time to the present, about four years, he has enjoyed good health. The case is more striking, from an evident predisposition to consumption. Delicate care and proper treatment are the principles that should be acted upon in these cases. Warm clothing and mild climate in winter is very necessary. Hastings or Torquay in Devonshire, or Penzance in Cornwall, are fine climates for invalids, far superior to any abroad, from the home comforts to be had, so necessary in these cases; besides the feeling of being within reach of friends, and amongst society of similar habits, all tend to allay anxiety. Fahrenheit's thermometer stood at 100 in the sun, in February, 1856, at Penzance. It is destruction to many delicate persons to stop in the cold climate of the north-east of England, where the winter is always severe, and the east winds in spring even worse.

One very common cause of consumption in females is owing to the stoppage of the menses. In these cases the treatment should be with a view to restore them, and the lungs will be frequently relieved.—For the treatment of Female Diseases, Leucorrhea and Menorrhagia, see further on.

THEORY OF INFLAMMATION.—I have read many of the treatises written on this subject, but find a good deal of diversity of opinion amongst eminent writers. I venture to give my idea on the subject, from my own observation. Veins, by the profession, are thus designated from their conveying the exhausted blood to be renewed. Arteries are also veins, but they convey the oxygenized blood from the lungs, by the left ventricles of the heart, to every part of the body for its support. Thus non-medical readers are sometimes puzzled by the terms veins and arteries, which are, in fact, identical in form, but have different offices: both, as will be seen by the engravings, act by muscular contraction and expansion, and so force the blood forward, and are provided with muscular bands and with a membrane stretching across the vein internally. This membrane is larger than the exact diameter of the vein, and is pierced with an orifice in the centre. The blood is propelled through this orifice; but to stop its return, the back pressure closes the orifice and prevents a backward course, as shown in the engraving.

When the muscular power of the arteries or veins is reduced by various causes, such as severe cold, drinking ardent spirits, simple weakness, violent contusions, the nervous power is lowered, (for it must always be borne in mind that this nervous power, or electricity, of which I have spoken so much, is the moving and primary cause of all circulation in the body,) the arteries and veins cannot perform their office, and are unable to propel the blood freely on its course at some particular part, either internally or externally; here, then, is the cause of congestion and inflammation. The blood does not get forward to be purified and renewed by the lungs, the liver, the kidneys, the glands, the skin, &c., and hence rapidly becomes of a corrupt character; and unless the obstruction is soon removed, it becomes actually morbid, poisoning the whole system; decomposition sets in, mortifying and destroying the whole frame, and death soon ensues.

The primary cause of inflammation of any part being the lowered vitality of the organic nerves, it follows that every care should be taken not to further lower their power, but to raise their vitality, and this our fomentations and bandages does effectually, quickly, and safely, by drawing blood to the surface of the body and relieving the interior vessels, and quickening the circulation of the parts affected. When the inflammation is subdued, the patient quickly rallies and is soon well. The obstruction is removed, the blood moves freely through the veins, the stomach immediately participates in the relief, and calls urgently for food to repair the exhausted frame. I give food only moderately and frequent in these cases, and avoid all stimulants, and no animal food. I have had severe cases entirely cured in six to twelve hours. It is very striking to witness the rapid exhaustion of the whole body by inflammation of any vital part; this, however, is easily accounted for when the nature of the organic nerves is considered, as the lowering of their vitality in any part affects the whole until dissolution takes place, when this goes on to a certain degree. The difference in principle of treatment betwixt our methods and that of lowering the vital power of the body, which is done by medical men in the very first steps, is easily seen. They lower the body to subdue inflammation, and kill the patients, or lay the foundation of fresh inflammation, dropsy, &c.

I have had a great number of cases of severe acute inflammation; (for acute and chronic inflammation must not be taken for the same thing; acute inflammation is the first stage;) and this of which I am treating is most dangerous to present existence. When the first attack has subsided, a slow, low inflammation may still exist, but not be imminently dangerous to life; this is called chronic. My mode of treatment in these cases commences by first taking into account the lowered vitality of the nerves of nutrition. In the first stages, and while the pain is severe, hot fomentations, as hot as can possibly be borne, with our hot pads and fomenting can, where they can be applied, laying the patient in bed, keeping as quiet as possible, and sipping water not quite cold. Our plan of fomentation has a vast advantage over the ordinary method, as the pad and can will keep hot so long, and the patient is not disturbed, nor the parts affected exposed to the air, by requiring frequent changes of the pad. We renew the pad and can, (but this is seldom necessary except in severe cases where the vital heat is almost extinguished,) by having others ready as soon as the patient feels the heat of them lowering. After fomenting until some relief is given, the next operation is a wet body pack, (see Wet Pack,) the half sheet or towel wrung out of hot water put round the trunk, and over it blankets and mackintosh, to keep in the heat well, and light wrapper round, the patient lying still for half-an-hour; then remove the pack, rub the trunk with a towel wrung out of tepid water, or have a shallow bath, 75 deg., after well rubbing for one minute, and dry. If the pain be not subdued, go on with fomentation and packing again until it is, however long that may be, as the inflammation is certain to be subdued by these means. One case, inflammation of the pleura, very severe, was thus cured, a man of a broken constitution, sixty-five years of age. He wanted a double breakfast in six or eight hours after, and at dinner-time was voracious for food: in twenty-four hours he was quite convalescent. What would have been the consequence of the destructive system of drawing more vitality out of the man, by bleeding, blistering, and calomel? perhaps death, or a miserable existence the remainder of his term of life.

PROVIDING FOR "CRISIS"—OR SOMETHING WORSE.—On the 19th of November I left home, with several friends; one Mr. Allen, the proprietor of Riber Hall, (with whom we sojourn in summer at his mountain home, 600 feet above the level of the river,) for Manchester, by the late train: we took tea, with eggs, before leaving, and arrived in Manchester at the Royal Hotel, at half-past ten o'clock. We found, in the commercial room, a number of gentlemen, all (with, I believe, only one exception) engaged in smoking cigars, and each with a glass of spirit and water. I observed to my friend, "Here you see how crisis is produced, and my time, and labour, and patience, and skill is taxed to counteract the effects of this unnatural mode of comforting the poor fatigued body, after the day's labour and anxiety." The exception named was a gentleman making a hearty supper of beef, pickles, pastry, cheese, celery, &c., with ale; and no doubt he would finish by following the example of those around him. "Anti-hygienic, with a vengeance!" I exclaimed. Not liking the atmosphere, and it being a very fine night, we strolled into the streets. I wanted to show my friend, Mr. Allen (who although past the meridian of life, had never before been in a large town, nor more than sixteen miles by rail previously) specimens of the system of living he has so often seen me writing against in the drawing-room of his old Hall. On sallying out we soon met with business men who had evidently been similarly occupied to those we had left at the Hotel. None, however, showed the least signs of intoxication, but their haggard countenances told that their mode of life and occupations were not congenial to healthy development. My friend having never seen a billiard room, we turned into one. There the same class of men met us with countenances some haggard and pale, others red enough, puffing cigars, as a matter of course; and breathing the heated atmosphere charged with tobacco smoke and sulphur from the gas burners: we only stopped a few moments. A little lower down we came to a gin shop. We walked in at one door, and went along through a motley line of drinkers, some sober, some not so—mechanics, squalid woman in rags, gaudily-dressed prostitutes, some mere children, and out at the other door. My friend, horrified at such a sight in a civilized country, exclaimed, "Why are they not put down?"

After a further round by the Exchange, now looking solitary and quiet, its busy anxious occupants of the day gone home to prepare, by their home comforts, (some probably such as I have before alluded to) for the strife again on the morrow. We retired to rest without anything more than each a glass of water, and an orange we each bought on our stroll; and rose in the morning with cool heads, and a good appetite for the luxurious display of turkey, pheasant, beef, ham, tea, and rolls, &c., the Royal Hotel so amply provides, in clean rooms with the most civil and attentive waiters. After our meal we started on the business I had come about, which was to inspect some newly-invented machinery previous to purchasing. The streets were again all alive with the busy crowd, like ants, going in all directions,—now and then we met a number of unemployed operatives, with starvation in their faces, their wages having ceased; and with many of them, the means of providing food and going to the nightly gin shop being exhausted, they now feel the double deprivation of stimulants and bread too.

The great commercial crisis being at its height, the Exchange, which we now entered, was crowded with the most gloomy and anxious number of faces I ever saw congregated together. A merchant there said many that morning trembled to open their letters, lest they should find in them information that their bills were dishonoured and themselves bankrupts. "Why," I said to my friend, "should men sacrifice health and peace, and shorten life, to make fortunes they seldom live to enjoy, and always at the expense of present enjoyment?" I wished that over the Exchange, and inside too, could be written, "For we brought nothing into this world, and it is certain we can carry nothing out. And having food and raiment let us be therewith content. But they that will be rich fall into temptation and a snare, and into many foolish and hurtful lusts, which drown men in destruction and perdition. For the love of money is the root of all evil: which while some coveted after, they have erred from the faith, and pierced themselves through with many sorrows."

We visited factories and machine shops, all full of bustle, dust, dirt, and anxious haggard occupants; then dined, and turned homewards out of the rolling noise of coaches, carts, omnibuses, and hearses (of which there was a sprinkling), the smoke and the gas, to the railway station; and were soon amidst the grand and wild scenery of the Derbyshire hills above Glossop, through which the rail passes; and arrived home late; a cup of weak tea, bread and butter, and an egg, and to bed; to rise early in the morning and again to business. Business, however, with a cool head, quiet nerves, and moderate desires, and an assurance that all things shall work together for good to them that love God, is very different in its effects upon the frame from what we had witnessed the day previously. " And why take ye thought for raiment? Consider the lilies of the field, how they grow; they toil not, neither do they spin: and yet I say unto you, That even Solomon in all his glory was not arrayed like one of these. Wherefore, if God so clothe the grass of the field, which to-day is, and to-morrow is cast into the oven, shall not he much more clothe you, O ye of little faith?" Many prefer something present and tangible, which they cannot retain, and seldom enjoy.

STOMACH COMPLAINTS.—These proceed from a variety of causes, and great errors in treatment are often committed from want of a correct knowledge what has caused the stomach to be out of order. In a great number of cases the cause is in over-worked brain. The vis vita or electricity, in the nutritive nerves, is drawn from its proper office of causing the necessary chemical change in the chyme or dissolved food in the stomach, and consequent acidity takes place. This irritates the coats of the stomach and duodenum; it passes into the bowels, where it is taken up into the blood, and this imperfect matter makes imperfect and poor blood and bad tissue; and this imperfect blood circulating through the body, and coming in contact with the delicate nervous system, irritates and impoverishes the nerves by not affording healthy material for their support.

When the stomach is "out of order," persons commonly resort to drugs to restore it, which only give temporary relief, and increase the evil by forcing the stomach to act; to be followed by proportionate re-action. For example, when there is acidity, alkalis, soda, magnesia, &c., are resorted to to correct the acidity; which they will do so far as the then contents of the stomach is concerned. But as all alkalis lower the vis vita or electrical power of the nutritive nerves, the relief is only temporary, and the mischief more permanent; as is experienced the next time food is taken into the stomach. Thus chronic disease of the stomach and duodenum is often the result, and the individual cannot live without a constant supply of soda, which after a time ceases to give relief; and a miserable prolongation of suffering succeeds, until death relieves the sufferer.

Whenever I have acidity, which I have sometimes from over-work, I take a foment pack or two, or common wet pack, or a six minutes' steamer, followed by cold shallow or cold dripping sheet, and wear wet body bandage. I go on taking plain food without any stimulants or condiments, mustard, pepper, or pastry, allowing the brain to repay the vitality it has overdrawn from the nutritive nerves by entire rest. Many persons are fidgety and anxious if they perceive acidity in the stomach, they are never at rest about it, first taking one remedy, then another, now soda, then brandy or bitter beer, until they set up real chronic inflammation of the mucous membrane. I bear with acidity until it goes off by rest and diet, and these simple baths, and if even of a few days' continuance, no injury will result. The constant attempts to cure acidity by any other means than raising the power of life by natural means, without stimulants or medicine, only increases the nervous irritation.

Tobacco and opium are very fruitful causes of stomach disease, lowering the vitality, causing acidity and flatulence, becoming also tyrannical habits, exceedingly difficult to shake off, until they have incapacitated the poor stomach and nerves for any further work. The mucous membrane lining the stomach is first affected, as shown by the red and loaded tongue; then, of course, the inflammatory action is communicated to the nerves, and is shown by the white tongue, the brain having become implicated by sympathy. The mucous membrane lining the stomach being continuous in the duodenum and bowels, and passing up through the gall duct into the liver, and also to the pancreas, all sympathise with the part first affected in the stomach. This goes on increasing for a long time without great inconvenience if a person has a tolerably stout constitution, but some day an excessive dinner, or extra quantity of stimulants, or severe cold, sets fire to the train, and all the inflammatory action then concentrates on the weakest part, be that the lungs, the liver, stomach, or bowels. Bleeding, blistering, and calomel are immediately and actively employed to reduce the inflammation, and with it the power of life; and the vitality of the blood is reduced often never to be restored again. Fomentations, body pack, simple diet, and rest, as before mentioned, would seldom, if ever, fail to accomplish a cure, and leave the patient uninjured.

When a person's tongue is unnaturally red, cracked, and fiery, there is great danger to life, ready to be developed,—taken at once by rest and simple treatment, the cause may be removed; but in all cases where this state of tongue has been allowed to come on, a much longer time will be required to effect a cure. A loaded furred tongue shows the impurity of the blood, the offensive matter having come from the lungs, and not from the stomach; and when the tongue is habitually loaded, it indicates that there only wants a little exciting cause, in the shape of a cold or excess in eating or drinking, to bring on typhus fever. Administering purgatives because the tongue is not clear, aggravates the mischief tenfold. Stimulating the skin to perspiration by hot and cold dripping sheets, short vapour baths, followed by cold shallow ones or cold dripping sheets; or wet packs; at the same time drinking cold water by sips, five or six or more tumblers a day; avoiding tea or stimulants, and mostly flesh-meat; regulating the amount of the treatment by the strength of the patient, and giving nature time to act (for if this be not done, great mischief may accrue by over-stimulating the skin and whole frame by too much of these applications in a day). It must be borne in mind that if the frame is overdone with water in any form, it may be injuriously reduced in power by too great exudation from the skin.

I give the high authority of Dr. Gully on the subject of the state of the tongue, as symptomatic of various states of disorder in the stomach. See further on—article, Mucous Membrane.

I have recently had the case of a staff-officer in the army, fair frame, age about forty-five. When he came to me, his blood-shot eyes, depressed brow, and the suffering expression of his countenance showed that there was great mischief somewhere. He had had advice, and the numbness in his head and impaired sight was pronounced congestion of the brain. There was, of course, congestion from the nerves of the stomach, sympathising with the brain, and their lowered organic vitality caused the muscular action of the blood-vessels in the brain to want the full power to propel the blood forward, and so caused fulness and all the distressing symptoms which drugs had only aggravated; and he was quite incredulous that our simple treatment and rest would restore him to health. Nevertheless, he became quite well. The stomach had long been punished with alcohol and tobacco, but being naturally robust, nature had long borne those outrages on her laws which would have destroyed a more delicate constitution. I gave him at first only tepid dripping sheets, hot soaping, with a tepid wash; very gentle fomentation to the stomach half-an-hour, followed by a rub down with a towel, partially wrung out of cold water; a sitz bath 85 deg., for ten minutes, with the feet in hot mustard and water; wearing a body bandage night and day, at first spongio, as he could not get warm with a calico one. As soon as his system got a little more vitality, he wore calico body bandage night and day, with a spinal compress, and slept in wet socks; he had also a head bath for fifteen minutes once a day, followed by a tepid foot bath. After a time five minutes steamer was given, followed by the cold sheet, and a sitz 70 deg. for eight minutes. He next had a wet body pack, then whole wet pack, having the legs, from the knees downwards, wrapped in a dry blanket, with a hot can over the blanket; finally, cold dripping sheets and douche. Diet at first, a little lean cold mutton chopped fine, and mixed with bread crumbs and a spoonful of gravy, with rice pudding. without egg, for dinner. Breakfast, very weak black tea with light-boiled egg; but cold water instead of tea is generally best. Evening meal same as morning, nothing after 7 P.M. When the stomach is low in power, it must have rest, and very little food, until there is vitality to digest it; otherwise more impure matter is put into the blood, thereby deteriorating its quality. In cases of chronic disease of the pylorus or duodenum in the pit of the stomach, there is little power to stand much water treatment; still the hydropathic system, I believe, is now the best and safest remedy. Dry hand-rubbing over the stomach by a healthy strong person is of great use in these cases, and gentle fomentation over the stomach. But if the part is very irritable and painful, a wet stomach pack, with a towel wrung out of 65 deg. kept on for an hour at a time, and then wiped with partly wrung-out towel; a soaping all over with tepid wash down once a day, and 90 deg. sitz. Dry fomentation over the stomach with fomenting can for half-an-hour at a time is good; and also No. 50 on the bath list; wipe the part with wrung-out towel after.

The great variety of causes of stomach disease makes it impossible to lay down anything more than a general principle of treatment. It must always be borne in mind that in these cases there is a depressed vitality of the whole frame, as the great plexis of nutritive nerves connected with the stomach (which are the primary source of digestive power) are in contact with the inflamed mucous membrane. The body must be nursed into vitality by the most attentive means, and in accordance with its delicate structure. All art can do is to be a nurse, and a very unpresuming one; watching symptoms, and paying regard to the minutiæ of nature's indications. If we are to be in health, we must obey the laws God has laid down as conditions of health; eating to live, and not living to eat; keeping the body, with its often unreasonable cravings, in subjection. Keep the surface of the body also well cleansed from the great daily exudation of waste matter, which, if suffered to remain, is again taken up by the absorbents, poisoning the blood, and throwing double work on the organs of excretion—the lungs, liver, bowels, and kidneys.

FLATULENCY.—This troublesome ailment is often made an excuse for taking matter into the stomach that causes all sorts of mischief. People take brandy for flatulence,—they smoke tobacco for flatulence, and some refine upon this and get nice stimulating mixtures for it. Now all these things only aggravate tenfold the causes which produce it. Flatulence proceeds firstly from weakness in the nerves of the stomach, causing acidity, then fermentation; thus generating gas in the stomach and bowels. Strong healthy persons have no flatulence. Those who have, let them bear it patiently, until by proper diet, rest, and the plans mentioned page 87, the stomach performs its office; flatulence will then disappear, and in no other way will it be cured. No. 76 on bath list essential; if obstinate, No. 67.

LIVER COMPLAINTS are commonly shown by the yellowness of the complexion, and what is ordinarily termed biliousness; attended by sickness, nausea, furred tongue, headache, and disagreeable taste in the mouth; and lowness of spirits, sometimes amounting to mania, from the vitiated bile circulating in the blood, and thus coming in contact with the sensitive nerves in the brain. For the anatomy and functions of the liver, see engraving and article further on. As liver complaints arise from various causes, I can only, in this limited work, give some general advice. Budd on the liver, and Gully, give more particulars of the causes than I can have space for in this work. The most ordinary symptoms of disordered functionary action of the liver is, as I state above, the yellowness of complexion, nausea, headache, &c., the bile, from want of electrical power in the organic nerves, is not taken out of the blood, arising from over-fatigue or improper food, but goes on circulating in it, sickening every part of the body it comes in contact with, until the blood is so impregnated that jaundice is often produced. What bile does pass into the duodenum, or small stomach, is so acrid that the delicate nerves in the mucous membrane cannot bear the presence of it, and immediately expel it, either upwards by vomiting, or downwards, through the bowels, causing diarrhœa. First, it is necessary to be careful that nothing is taken into the stomach to cause increased irritation; and as the stomach, duodenum, and bowels more or less sympathise, when there is obstructed action of the liver, little food, and that of a very simple kind, is best until these have recovered their tone. *No stimulants or coffee* should be taken; no milk, and the less flesh meat the better; and if any, a little cold lean meat cut fine, with bread and water, and a little mealy potatoe and farinaceous puddings without egg. Fomentations to the stomach and bowels should be given with the flannel pads and can, and afterwards a wash down, or cold dripping sheet, wearing a wet body bandage. Whenever, from over-fatigue, I become bilious, I find foment packs soon restore me; generally one is sufficient, or one every day for two or three days, if much out of order. When there is chronic liver disease, then the pack No. 48 and 49, as described in list is very useful. The wet body bandage, worn night and day, is very beneficial; sitting baths, 80 degrees lowered down to 70 or 60, for fifteen minutes, having occasionally the feet in hot mustard and water. No. 98 or 99 useful. Sometimes persons who have been in hot climates, and have there lived irregularly, suffer afterwards from atrophy, or waste of the liver; this is never cured, but life may be prolonged by care and the use of gentle hydropathic remedies. Such cases are often free from bilious vomiting, or nausea, and have fair appetite, but they cannot get nourishment from the food they take, and the countenance is pallid, the blood wanting the red corpuscles of healthy persons. Little can be done for such cases, as any strong measures, either in allopathic or hydropathic treatment, will only shorten their lives and add suffering. Care in food, with rest, and slight applications of water to the surface of the body, according to the lowered vital power, is all that can be done. If there is continued sickness in these attacks, use the stomach pack No. 50 in list, and rest in bed. The ordinary way of treating liver attacks, by calomel, is shown strikingly in Gully to be destructive to life. Mustard plasters may be freely used over the liver and stomach in bilious attacks; and being a vegetable substance no injury can arise therefrom, as is the case with blisters or mercurial ointment. From being constitutionally bilious, and having suffered from it for twenty years, I now scarcely ever know what it is, except from over-fatigue; and then a little rest soon sets me right. I can take a greater variety of food than formerly, with comfort, and I attribute this to entire abstinence from all alcoholic drinks, and the daily use of hydropathic applications, as dripping sheets, sitz baths, &c. The most painful and distressing affection of the liver is the formation of gall stones, from the liver forming impure bile, which becomes hardened in the gall bladder. These gall stones are sometimes of considerable size, and are forced through the small tube called the gall duct, sometimes rupturing it, and thereby causing death. Gall stones as large as a horse-bean are often passed, and the patient suffers the intense pain on the first passing of them, but often after is scarcely conscious when they pass, from the duct being enlarged. Hot fomentations and hot shallows and foment body packs are what we recommend when the paroxysm is on.

DISEASES OF THE KIDNEYS.—The space I have here will not permit me to go into the intricacies of this subject; I can only make some general observations upon the irregularities and diseases of these organs. Dr. Johnson's work on the subject gives the best and most extensive information.

I give in this work a clever engraving of the blood-vessels and absorbents in the kidneys, with a description of their nature and offices; and it will be seen how delicate and wonderful the action of the malpighian tubes are; for through these knots of blood-vessels the uriniferous tubes which cover them draw out, by their electrical power of attraction, the urine from the blood. How this is accomplished, physiologists have been unable to discover, for there are no perforations nor any appearances of outlet; they can only tell that the act of abstracting the urine from the blood is there performed, and carried into the bladder. Other impurities are drawn away out of the blood by the same process. Comparatively little attention is paid to the state of the kidneys in doing their work healthily. All attention is often absorbed by the bowels, when it is as necessary to health that these organs should take out the waste matter from the blood, as the bowels do the fæces. The delicate structure of the kidneys points out at once how necessary it is to live in the plain manner it was designed we should do, for all the ale and porter, and the wine and the spirits, and the hot condiments, and the infinite variety of the cook's inventions, enter the blood, and have to pass these purifiers as well as the liver.

The quantity of alcoholic drinks many use, wear these fine knots of vessels out, or cause inflammation in them; and the consequence is, in thousands of cases, destruction. The uriniferous tubes, when diseased, draw out with the urine, serum, and the life of the blood; bringing on diabetes, which so rapidly reduces the body. I am often told persons have the gravel, and that there is a gravelly sediment in their urine: this is a mistake; that sediment comes from excess of impurity in the blood, from the liver not taking its proper share of the work with the kidneys for purification; when the liver is put right, the sediment mostly disappears.

When there is pain in the small of the back, where the kidneys are situated; or uncomfortable feeling, with restriction of urine, and the urine high coloured, I find the best remedy is the use of the hot fomenting pads for half an hour; one on the back, and another on the front of the body; with a hot can underneath that on the back, and one on the front. This is beneficially stimulating to the liver and stomach, as well as the kidneys. After the fomentation, have the trunk wiped over with a towel partly wrung out of cold water; or have a tepid dripping sheet in winter, or cold one in summer; and put on the wet body bandage, re-wetting it every two or three hours.

A hot sitz bath, fifteen minutes, No. 98 on list, may be given, then a wash as before, and put on wet body bandage, wearing it day and night, or day only; over which, if it does not keep warm, put flannel, for, if not warm, it will do no good, but harm. Sipping five or six tumblers of cold water a day is excellent for cleansing the blood. A wet body pack one hour, followed by a tepid or cold sheet, or wash, will be of great service if the other baths named do not give relief soon. Absolute abstinence from all stimulating drinks, pepper, mustard, and pastry, and abstinence from flesh meat for a few days, is necessary to relief. It must be borne in mind that if the skin and the liver do not take their proper share in throwing off impure matter from the blood and the whole body, the kidneys have extra work thrown upon them; and thus, if the kidneys do not act well, the liver and skin have more to do. And so by the skin; if that is not kept in good condition, and its pores free, the matter that should pass through it is thrown on the liver, the lungs, and back on the kidneys. Nature uses any outlet to relieve itself of impurities. Entire rest reclining, is essential in this disease. Another and primary cause of disease is the presence of albumen in the urine, from the lowered vitality of the nutritive nerves not having power to keep up the healthy chemical compounds. From the great importance of the subject, I quote Hooper largely further on. In any disorder in the action of the kidneys, try the effect of our applications to the skin, and the sitz baths, and the body bandages, and I am sure relief will be found, and without possibility of harm; not so by drugs. No. 93 bath may be used often.

DIABETES.—This is a disease that is rarely if ever cured by medicine. The cause is, that instead of quieting the inflammatory action going on in the kidney (and especially in the malpighian tubes), porter, wine, and flesh meat are ordered in profusion, along with physic, increasing the inflammation in those parts; thus, by the introduction of more inflammatory matter, under the idea that all these "good things" are necessary to keep up the strength of the patient, but which instead add fuel to that fire already burning, and thus consumes the structure with double speed. The cause of the inflammatory action is in the blood, which, by the frequent use of stimulants and improper diet, has become diseased, and its chemical properties deranged; and by it disease is carried into the kidneys and the delicate structure of the malpighian tubes. We first use strict diet, abstinence from all stimulants, &c., as I have stated in affection of the kidneys; no flesh meat, gentle fomentation, sitz baths Nos. 93 and 98; but the system is soon so lowered, that even dripping sheets and sitz at 80 degrees are too cold. For these cases we give them at 90, until they can be borne with comfort lower. There is the lowest vitality to deal with, and excessive or strong water treatment would inevitably do mischief.

DISEASES OF THE BOWELS.—I have, in the description of the different baths, given some general directions as to the remedies we use in what are commonly termed bowel complaints. The bowels are liable to various and serious diseases. The most serious, and which often proves fatal unless taken in the early stage, is, inflammation of the mucous membrane lining, and its consequent destruction, when it passes off in the form of slimy mucus, and occasionally streaked with blood. When the bowels are habitually relaxed there is weakness in the nervous power, and consequent danger of disease easily, and by trifling causes, taking place. Such cases would find great and permanent benefit from the frequent use of the sitz bath about 65 degrees 10 minutes, twice a-day, common spinal rubbing while in the sitz will be of much benefit, as well as rubbing the bowels while in the bath. Some with relaxed bowels cannot wear the body bandage, but when they can do so without causing irritation of the bowels, they will find much benefit from using it a few days at a time.

The general treatment we pursue in cases of chronic inflammation of the bowels and discharge of mucus is, to use very gentle treatment with a view of soothing the whole frame, *and avoiding any strong re-action by cold application.* First, a very gentle fomentation for twenty to thirty minutes, followed by a sitz bath, 80 or 85 degrees, for five minutes, rubbing the bowels with the hand gently, and if 80 or 85 deg. feels too cold, have the bath 90 deg. Besides this, have a lazy pack, No. 50, and a tepid wash down, or a tepid sheet on rising and at noon; a sitz at bed-time 80 deg. for fifteen minutes and no rubbing, having feet in hot flannels at the same time. Avoid all stimulants and flesh meat while there is any discharge of slimy mucus; and avoid much exercise or mental excitement. Opiates are given largely for this disease; they only allay the pain and forcibly stop the discharge, to some extent; but as opiates are entirely foreign to nutrition, the relief is only temporary, and the re-action greater. No. 67 is useful. A late workman of mine brought on this disease by the use of tobacco. His fine fully-developed frame and naturally robust constitution had long withstood the deadening effects of this baneful narcotic; but he had at last to pay for the gratification of his appetite with many months of misery, and the shortening of his existence by, probably, twenty years. For the treatment of hopeless cases of this disease to the period of death, see index, "Death from Ulceration of Bowels."

Within the last fortnight we have been called on to administer relief to two cases, the suffering brought on entirely by the use of tobacco, and even our ordinary remedy for relief in dying cases was only partially successful; both are a good age, with very strong natural constitutions, but for many years have suffered from pains in the stomach and bowels, flatulency, and nervousness, and are now paying dearly for the gratification of the pipe by painful disease, hopeless of cure. Tobacco smokers never die without acute suffering in the stomach and bowels.

A youth, age about fourteen, is just come to my free hospital for chronic inflammation of the bowels, the bowels swoln and hard, tongue fiery red, with great thirst, and purging almost constant: the case appears to be almost desperate from being neglected. He is in the service of a butcher, and I believe he has brought on this attack by taking too much animal food, producing constipation and inflammation, at first acute, now chronic. Treatment ordered: as long as the purging continues have bath No. 67 and tepid water injections. When the bowels are quieter, give Lazy Pack No. 50, mustard poultices to feet, and wet head-bandage, sipping a little water not quite cold (never drink cold water in cases of inflammation); when the last wet towel is removed, sponge the bowels with a sponge squeezed out of tepid water, and put on wet body bandage wrung out of tepid water, and flannel wrapper over. Give a little rice well creed in water or sago; take nothing to eat or drink cold; all nourishment must be warm, and no ale, wine, spirits, or flesh meat. This treatment, after twelve hours, has caused a visible improvement in the patient; who is after ten days convalescent. Worms cause disease in the bowels, and great irritation, and are a cause of complaints being exhibited in other parts of the frame that appear to the casual observer to have no connexion with the bowels. Epileptic fits, sickness and nausea, irritation at the seat, and general disturbance of the nervous system, and excessive craving for food, and griping pains, are not unfrequently the symptoms of worms in the intestines. Our remedies are general tonic treatment, and the use of the body bandage; drinking half a pint of cold water on an empty stomach four times a day. Worms are, however, difficult to eradicate.

THE HABITUAL USE OF PURGATIVES, however small the quantity, will eventually produce disease. The idea many have of the necessity of keeping the bowels "open" by purgatives often destroys the mucous membrane lining; and the bowels will never act naturally so long as aperients are used. No harm can arise for several days', or even a week's inaction of the bowels. Stimulants and tobacco, by injuring the nervous power of the bowels, greatly tend to irregularity and disease.

SORE THROAT.—For sore throat, or ulcerated sore throat, wring a napkin out of cold water, double it into four, lengthways, wrap it round the throat, and a good quantity of dry flannel over it, to produce heat. If a good heat is not produced, it will do no good. If there is much inflammation in the throat, renew the wet cloth every quarter of an hour; this persevered in night and day will rarely, if ever, fail to stop quinsey, and cure bad cases of ulceration. But as sore throat is only a secondary symptom, care in diet, &c., is absolutely necessary, and while the throat is affected, flesh meat and all stimulants must be abstained from, sipping four or five tumblers of cold water a day, by table-spoonfuls at once, during the time the affection continues, is very beneficial. If the napkin and flannel is objected to in the day-time, use a piece of wetted spongio piline, and a woollen scarf. In case of much internal inflammation and swelling in throat, use bath No. 80, one or two hours, feet in hot mustard and water twenty minutes, followed by No. 79 tepid six hours. Many lives would be saved by the use of this simple application. In simple sore throat from cold, I find packing the neck during the night, and washing it in cold water next morning, shortly and invariably restores. Use No. 181 also. The prompt application of this plan would save many from bronchitis and consumption Mustard plaster may be used to the throat with advantage and safety, having the legs up to the calves in mustard and water, 105 deg. fifteen minutes.

CATARRH, OR NOSE COLD.—Wet pack the forehead, then put some tepid water into a basin, or mug, and put the nose into it and commence sniffing up the water; do so for three or four minutes, then wait awhile, and do the same again, repeating this several times a day according to the severity of the attack. Keep the whole head well packed all night, a little flannel pad squeezed out of hot water, and laid over the forehead before the wet bandage is put round the head, aids the beneficial effect. This plan will also stop nose bleeding, with the addition of keeping a cold cloth at the nape of the neck.

WET BODY BANDAGES should not be worn constantly. I have had patients who, on leaving the Establishment, have worn the bandages without advice for months together. I use the body bandages for a few days occasionally, when stomach or bowels are out of order, or if fatigued. The wet chest compress should be replaced by dry flannel, when the chest or cough is relieved.

TYPHUS FEVER is of altogether a different kind from scarlet fever, as it is owing to the bad impure state of the blood, and may be brought on at any time by bad diet, and the inaction of the purifiers, —the skin, liver, and kidneys, &c. It commences by giddiness, prostration of strength, drowsiness, moist flabby tongue, with fetid breath, small and rapid pulse, intense heat, but not on the skin. Begin with the wet foment pack. Put a small wrung-out wet napkin in the armpits before covering up the patient in the pack. Remain in this pack half an hour, then to be taken out and have a tepid dripping sheet, or shallow at 70 deg., or tepid sponge over, and then well dried with a dry sheet, not exposing the body to the cold. When this is done, wrap the body in dry blankets while another pack is prepared, and repeat the same operation as before, with the same after-treatment. Dress after the two packs and lie down on a sofa or bed. Repeat the ordinary wet pack, with foment can on bowels, every six hours, night and day, until the fever is subdued, gradually abating the number as the fever lessens. It is to be borne in mind that this fever very greatly reduces the strength; the blood and tissue is poisoned with impure matter, which, unless drawn out, soon becomes putrid, and of course destroys life. If the bowels do not act with the pack and hot pads, use an enema of warm soap and water. Wear the wet body bandage night and day, changing every two hours, if not too fatiguing; but it is essential to renew and wash the wet bandage, as it will draw out much morbid matter; the sheets and blankets should be well washed also, and often aired.

The great object must be to raise the vitality in the nutritive nerves, and especially of the stomach and viscera, and if they can be healthily stimulated they will soon work off disease by making good material for the blood. The arms and legs should also be kept constantly packed when out of the above-mentioned pack; this is done by strips of calico wrung out of tepid water, wrapped round the limbs, and then mackintosh and flannel over, as described No. 214 in list. Renew these limb packings with the body bandage, having a fresh body bandage and fresh packings, that one set may be thoroughly cleansed of the fetid matter whilst using the other—not washing the limbs when changing the bandages, &c., as it would tire the patient too much, but wipe them with towel wrung out of tepid water.

These packs to the whole frame, and especially the fomenting pads, will stimulate the skin, the liver, and the kidneys to act in purifying the blood, and as soon as these organs can be got to work, nature will cure itself. Cold applications in the commencement of fevers, on reflection, will be seen to be injurious,—the system is deranged, the nervous vitality has lost its command over the functionary action, and any shocks by cold application causes too great reaction, which is only further drawing on the patient's strength. If the head is much affected, as it often is, a good-sized mustard poultice to the nape of the neck and top of the spine will be useful. Wipe this off dry, and renew it so as to keep up the redness. The throat, packed constantly, and bandages rewetted and changed with the others. Continue this treatment until the fever is subdued, when great weakness will follow; then sponge the body over whenever the skin becomes hot and uncomfortable, not oftener, as we do not want to draw further upon the strength by unnecessary fatigue. In this stage the water used may be 65 to 70 deg., washing the hands, arms, and feet with cold water, or wiping them with cold wet wrung out cloths frequently. During the height of the fever, the cooling drink from receipt in this book should be taken freely, with alternate sipping cold water. If the cooling drink causes any griping of the bowels, use water only. Drink whenever thirsty, as the water will be of great use in purifying the blood by promoting perspiration.

As to diet, during the height of the fever, the less food the better, and only of a liquid nature, as arrowroot, sago, or gruel, no bread nor flesh meat, nor any solids. When the debility comes on from the fever abating, shown by the pulse, &c., then give frequent spoonfuls of arrowroot or sago made with a dessert spoonful of brandy to the pint. Arrowroot with boiling water poured over it is better than boiling it, as it has a more astringent property. As the patient becomes stronger and has a more natural desire for food, and there is no return of fever consequent on giving stronger diet, some beef tea and dry toast may be given, and so gradually go on increasing the diet, to some finely cut up lean meat, with bread crumbs and a spoonful of beef-tea over, but dry is best. No ale, wine, or spirits except as above, but the usual diet as recommended in the early part of this book. Ale, wine, porter, or any rich food or condiments will derange the action of the liver and other viscera, and consequently the blood. The system must be nursed up with the plain cool diet, fresh air and good water, and rest. Patients very soon rally by the use of these natural means of helping the diseased body to regain its healthy condition, and it must be obvious how much is gained by the system not having a great quantity of poisonous drugs to throw off, besides the morbid matter, and the advantage of not punishing the stomach and bowels with what is so foreign and disagreeable to them, and which they always expel as soon as they have power to do so,—but the organs do not come off harmless in the operation.

SCARLET FEVER.—This formidable complaint is readily subdued by the following plans: we have never lost a patient out of a great number, when we have had the case in any reasonable time. When the usual symptoms appear, which are sore throat, and nausea, inflamed eyes, and general chilliness, followed by heat and red patches on the face and arms, commence with the wet pack night and morning, as in list No. 45, and also middle of the day if fever rises, followed by a tepid dripping sheet. Throat constantly packed No. 80, night and day, renew the cloths every hour, rubbing the throat at the same time with hand and cold water, wearing the wet body bandage night and day, in the first stages of the complaint. Continue this course till the whole body is covered with the scarlet appearance; then all that is required is to guard from cold, lest it should drive the complaint in again. Sponge with water 80 or 90 degrees, or give a dripping sheet night and morning, keeping the wet body bandage on night and day. Great care must be taken to avoid exposing the body to the air, while having the baths. Bear in mind also that the application of cold water will do mischief, and probably drive in the scarlet rash, which must be kept out on the skin until the fever is subdued, when it will disappear.

If, as I have stated before, the wet pack is used at once, and persevered in, on the symptoms appearing, and until the rash is out, much time will be saved. The patient should sip cold water freely, both in the day and also in the night. The wet body bandage should be re-wetted every three hours. Very little food, no wine nor any other stimulants, no flesh meat nor coffee, should be taken; but one-third of a bottle of soda water, with a teaspoonful of raspberry vinegar, every two or three hours. Soon as the rash goes in after the above processes, the skin will become rough and come away in scales. If there is no fever in this stage, do not take any treatment, for if the skin is rubbed off it will retard the formation of the new skin. If any feverishness is left, sponge carefully with 85 deg. water. Seven days is usually sufficient to get over this complaint. In cases where the fever has been allowed to go on until the throat is nearly swelled up, use prescription:—bath No. 82, then 81, or if not relieved, continue No. 82.

SMALL POX AND COW POX being eruptive fevers of a precisely similar kind, we treat them exactly the same as above.

SCARLATINA is only a milder form of the complaint, and may be treated in a similar manner. If in children, see directions, Instruction to Mothers, further on.

Scarlet fever is an acute inflammation of the cutaneous and mucous portions of the skin, accompanied with a very infectious fever. It is of the same nature as measles and other eruptive fevers, and cannot be subdued in a day or two, but must run its course, at least seven days. The superiority of the Hydropathic treatment in these complaints is very striking; numbers have ailments left in their constitutions for the rest of their lives by the drug system, and in some the constitution is ruined.

APOPLEXY.—This is a formidable and often fatal disease, to which all who indulge in intoxicating liquors, high feeding, and indolent habits, are liable. The doctor frequently wards off the blow for a time where he is at hand to apply to, by administering his purgatives and using the lancet and leeches, but which remedies nevertheless ultimately shorten life; and unless such subjects give up all stimulants, and live plainly, and take proper exercise, the result will, eventually, be ruinous to the frame. I have personally known not a few who have suddenly passed into eternity by this disease, and who had warning after warning, which, if attended to, would have saved their lives. But no, they trusted to the doctor's skill and to his nostrums to enable them to live in defiance of nature's laws. The bleeding and physic make sure work with the body sooner or latter, according to the frequency of their application, and according to the speed the patient lives. The burden of all my subjects in this little work must be, again and again, "Sow not to the flesh," for if we do, we shall most assuredly reap corruption, and may be, everlasting ruin and misery. But numbers will be led to the slaughter, and for what? For but a few hours' sensual gratification, which can only leave regret behind. The subject is of great importance to many preparing themselves for this disease, by indulging in what is improperly termed good living, i.e. excess in eating and drinking, especially at Christmas, and other times of feasting which regularly come round, and where many inventions to torture the stomach for the gratification of the palate are brought on the table, and it is not considered good manners to refuse to partake of what has cost the host so much money. I think it best first to give the following quotation from one of the standard authorities, showing the nature, prevalence, causes, and effects of apoplexy, and then to add remarks from my own experience of not a few cases which have come under my observation during the last seven years. Dr. Hooper, in his celebrated work, "Lexicon Medicum, or Medical Dictionary," says, "Apoplexy, from the Greek, '*I strike or astound*,' so called from the sudden and violent invasion of the disease. A sudden abolition, or great diminution, of the powers of sense and voluntary motion, the patient lying in a sleep-like state; the action of the heart continuing, as well as the respiration, which is often accompanied with a stertorous sound. The fit of apoplexy is frequently attended with convulsions of one side of the body and paralysis of the other. The disease has also been called *Morbus attonitus*; *Attonitus stupor*; *Sideratio*.

"The more prominent symptoms of apoplexy being analogous to those which indicate compression of the brain, the disease was, till lately, naturally enough referred by pathologists to effusion of blood or serum within the cranium. Thence the distinction of apoplexy into *sanguineous* and *serous*: the former was supposed to arise from an overflow of blood propelled with impetuosity by the arteries of a robust and plethoric system; and the latter from a thin and dilute state of the blood, with relaxation of the mouths of the vessels, causing serous effusion. This distinction has pervaded the writings of modern pathologists from the time of Morgagni downwards. It is true that apoplexy occurs under two forms corresponding with those called *sanguineous* and *serous*; the first being characterized by a hard full pulse, flushed countenance, and stertorous breathing; the second by a feeble pulse and pale countenance: but the notion that one of these forms is essentially connected with sanguineous effusion, and the other with serous, must be entirely relinquished, for it is now well ascertained that either variety of the disease may be accompanied with effusion of blood or of serum, and that either variety may occur without any effusion at all. This being perfectly understood, we may nevertheless admit the validity of the old distinction, as far as the nosography of the disease is concerned, and consider the majority of apoplectic cases as referrible to one of two classes, which, in order to avoid hypothesis, we may call *sthenic* and *asthenic*, instead of *sanguineous* and *serous;* the real difference between them residing not in the pathological cause, but in the state of the system on which it operates.

"1. In the sthenic form, the fit is generally sudden and without warning; though it is occasionally preceded by a dull pain in the head, accompanied with a sense of weight, somnolency, and vertigo. The inspirations are deeper than natural; the face is red, and the eyes bloodshot; and there is not unfrequently hæmorrhage from the nose. On the accession of the paroxysm, the patient falls to the ground, and lies as in a heavy sleep, from which he cannot be roused. The breathing is remarkably oppressed: though at first slow and regular, it becomes more frequent, feeble, and irregular, with the progress of the fit, till at length, in many cases, it is intermitting and spasmodic. In this form of the disease, stertorous breathing almost invariably occurs, arising from an accumulation of mucous in the trachea and larynx, which impedes the passage of the air in respiration. There is often, also, an accumulation of frothy saliva, which, as it becomes troublesome by its increase, is occasionally blown away from the lips with considerable force. The skin is nearly at its ordinary temperature, and covered with a copious perspiration; the pulse is full and hard; the face flushed; the eyes bloodshot and prominent, and generally closed. The cornea is dull and glassy, and the pupil for the most part dilated. In a few cases, however, there is a tendency to spastic action, sometimes extending to the limbs, but more generally confined to the muscles of the head and face, so that the teeth are firmly clenched, and deglutition is impeded; and where this state exists, the pupil, instead of being dilated, is strongly contracted. This contraction of the pupil is a symptom indicative of extreme danger. Dr. Cooke remarks, that although all writers on apoplexy mention the dilated pupil, the contracted pupil has been noticed only by Aretæus among the ancients, and Dr. Cheyne among the moderns. Dr. Cooke states, that he never knew a person recover from apoplexy who had the pupil greatly contracted, and that the experience of Sir Gilbert Blane and Dr. Temple agrees in this particular with his own. The remark has been fully justified by subsequent observation. The paroxysm of apoplexy varies in duration from eight to eight-and-forty hours, or longer. Forestus relates the case of a woman, who lay in a fit of strong apoplexy for three days, and yet recovered.

"The asthenic form of apoplexy rarely makes its attack as unexpectedly as the other, and is usually preceded by some precursory symptoms, as headache, vertigo, imaginary sounds, faltering speech, failure of the memory, or some other mental faculty, and at length a sense of drowsiness, and a tendency to clonic spasms. On the attack of the paroxysm, the patient is as completely prostrated as in the sthenic variety. The countenance, instead of being flushed, is here pale or sallow, but at the same time full and bloated; the pulse is weak and compressible, and the breathing, though always heavy and laborious, is not always stertorous. If spasms occur, they are generally of a clonic kind. The duration of the fit varies as in the preceding variety; and if the patient recover, he is more liable to a relapse, and more in danger of hemiplegia, or some other form of paralysis, than in the stronger modification of the disease. There does not appear to be the smallest reason to believe that this variety of apoplexy is more frequently connected with effusion of serum than the former. The difference between the two seems to reside principally in the greater vigour of the system in the one instance than the other; and where effusion of blood is found, as it generally is, in the asthenic form, the vessels seem to have been ruptured, not from habitual distension, but from accidental and often slight causes, that have produced a sudden excitement and determination of blood to the head, which the parieties of the vessels were unable to sustain: hence, a violent fit of coughing or vomiting, a sudden fright or fit of joy, immoderate laughter, the jar occasioned by a stumble in walking, or a jolt in riding, have been known to induce this form of apoplexy.

"The foregoing distribution of apopletic cases under two varieties must be adopted only in a very general way, for there are many cases of an intermediate character, to which neither of the descriptions just given would accurately apply. A patient who has once suffered from apoplexy is extremely liable to a return of the disease. When the fit of apoplexy is not fatal, the patient sometimes recovers entirely and speedily, and a few days after is as well as if nothing had happened: at other times, some paralytic affection remains, most frequently hemiplegia,* which is permanent or otherwise, according to the degree of injury sustained by the brain, the constitutional powers of the patient, and other circumstances. Apoplexy is a disease of advanced, rather than of early life, although it may occur at any age, even in infancy. Morgagni states, that of thirty apoplectic patients who came under his observation, seventeen were above the age of sixty, and only five below that of forty. Apoplexy, in one or other of its forms, seems to be at least as common among the poor as the rich. Sir Gilbert Blane, indeed, has observed, from tables derived from ten years' practice in St. Thomas's Hospital, and his private consultations, that apoplexies and palsies bear a larger proportion to other diseases among the lower than the higher classes.

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* Hemiplegia, from the Greek, half, and, I strike: so called because one side of the body is affected.—DR. HOOPER.

The affection, therefore, which has been called *serous apoplexy* appears to be merely *simply apoplexy*, terminating in effusion.

"On the whole it appears to be sufficiently proved that apoplexy may occur independently of effusion or any other marked lesion of the brain; at the same time the great frequency of sanguineous effusion in this disease leads us to refer many of its prominent symptoms to compression in the greater number of cases; especially as such symptoms are precisely those which are well known to result from compression of the brain arising from injuries of the head or other causes. There are no symptoms *uniformly* indicative of compression of the brain, whether resulting from disease or injury, and there are probably few practitioners who could not testify to the truth of this position from their own experience; nevertheless, when a patient dies in a state of profound coma, with immovable pupils and stertorous respiration, we expect to find on dissection that there has been some cause of compression; and the fact that these symptoms are occasionally met with where there is no compression does not prevent us from regarding them as the ordinary characteristics of that state of the brain.

"The blood effused in apoplexy is found in some instances to have issued from a number of small arteries, and in others to have proceeded from the rupture of a single one of greater magnitude; hæmorrhage may also be venous; and a case is related by Dr. Douglas, in which the left lateral sinus was ruptured. The quantity of extravasated blood has been found to vary from a few drops to five or six ounces. Morgagni states that the most frequent seat of the sanguineous effusion is the corpus striatum, and the statement has been confirmed by the observations of M. Rouchoux and other modern pathologists. Such effusions do not seem to be more frequent on one side of the brain than the other, though Morgagni thought that they were most common on the right. Of forty-one cases examined by M. Rouchoux, eighteen presented extravasation in the left hemisphere, seventeen in the right, and six in both,—a striking series of cases, it may be remarked, in favour of the opinion that there is usually extravasation *somewhere*. While the observations of Dr. Abercrombie render it probable that effusion of serum cannot often be a cause of apoplexy, it would be premature to deny absolutely that it is ever so; for, as Dr. Mason Good has justly observed, 'it is possible for effused serum to become occasionally a cause of that which, from its symptoms, is ordinarily denominated sanguineous apoplexy; for it is possible for the exhalants of the brain to participate so largely in the high vascular excitement by which this form of the disease is characterized, as to secrete an undue proportion of fluid into any of its cavities, and thus become as direct a cause of apoplexy as extravasated blood.'"

Although these high authorities announce their opinion that apoplexy is caused by an unnatural congestion of blood in the brain, the blood-vessels being unable to propel their contents easily and perfectly into the general circulation, and this of course implies weakness in the nervous power of those arteries, yet the old-fashioned plan is recommended by Hooper and other famous practitioners whom he quotes. Dr. Hooper says, "The predisposing causes of apoplexy are in general such as impair the energy of the brain, or occasion too great a determination of blood to the head, or impede the return of blood from the head. Plethoric, corpulent persons, with a short thick neck, are very liable to apoplexy. Excess in drinking is one of the most frequent predisposing causes."

After he has stated that the predisposing causes of apoplexy are in general such as impair the energy of the brain, and cause determination of blood to the head, he goes on to describe his remedies, which are precisely what ordinary observers would think likely to aggravate those causes by lowering the vital energy, as will be seen from what he proposes in the following quotation from his Medical Lexicon, and which is the standard and only authorised system recognised by the College of Physicians. The doctor says, "In the treatment of apoplexy, if we be consulted during the existence of the precursory symptoms which have been noticed as frequently taking place, we shall often be able to ward off a paroxysm by bleeding, purgatives, perfect quiet, and, in the sthenic variety, a reducing regimen. Where, however, the state of the pulse, and other symptoms, give proof of weak vascular action and nervous debility, depletion should be practised with caution; and purgatives will often be found preferable to blood-letting. Yet, whatever be the degrees of debility, if there be drowsiness, vertigo, and a dull pain in the head, we must have recourse to bleeding, either local or general; for such symptoms will assuredly lead to a fit, unless timely subdued."—Hooper, page 155.

Now from his language he is evidently afraid that the weak vascular action and nervous debility may not bear bleeding, so he recommends scouring the poor bowels, and forcing their delicate absorbents to take up his aloes and calomel, and carry such stuff into the circulation, instead of some natural aliment. Bleeding and purgatives to prevent a disease, which the faculty says comes on from want of vital power in the vessels to propel their contents easily and freely! Surely it is to be hoped they will discover some method of prevention and cure more in harmony with their own description of what the body wants, to avert these calamities. Bleeding and purgatives never did give nutrition nor vital power, but they do lower and extinguish it. They do not assert that there is too much blood in the body, but that it is determined in the excess to certain weak vessels. Now, instead of drawing blood by cupping, leeches, &c., from those weak vessels, which must necessarily, as the circulation goes on, be surcharged again, as soon as the viscera can manufacture more, and thereby leave the *cause* of disease in action, we endeavour to divert this excess of blood to other parts of the body, and to keep up a continued determination to those other parts until, by more natural living, the whole circulation is regulated, and the relaxed veins in the brain have had time for recovery. These vessels have long previous to the attack had an unnatural pressure upon them, either from lowered vitality, or by want of exercising the frame, or indulgence in bad propensities, which has prevented free circulation of blood through the brain, and hence pressure and often rupture of some veins.

Lowering the vitality, or the electricity in the nutritive nerves, by which alone every artery or vein propels its contents forward, must, on the slightest reflection, independent of prejudice, appear the most unlikely treatment to succeed in restoring. Nature's laws have been by some means outraged by the subject of the attack, and it is only by acting on this consideration, and returning to the strictest course of living those laws demand, which is so highly necessary to the brain, that any material or permanent restoration of the proper circulation can on sound principle be expected; for the blood-vessels in that part have not the capabilities of extension as in other parts of the body, where they may be greatly distended without danger to life, or even much inconvenience. The least pressure in the brain is felt, and if any of the minute and delicate veins are from this pressure ruptured, apoplexy and paralysis are the certain consequences, more or less. I wish to caution persons, however, from being alarmed at headaches, for if they are not living in any excess, and have not good digestion, the greater probability is that the cause of their uncomfortable feelings in the head proceeds from nervous sympathy of that part with the stomach. I have seen most distressing cases of headache, and heaviness there, cured entirely when the stomach has been put right. The person's course of life is the guide to judge if there is danger of apoplexy.

Non-professional and non-medical writer as I am, I have, since I searched into the principles of the nature and action of the human frame, been much struck with the great disregard and non-acknowledgment of some of the fundamental laws of existence by medical men in their ordinary practice of physic, in attempting to cure or alleviate the diseases of the frame. The wonderful discovery that the life of the body, and all its functions and powers of nutrition, depend, under God, entirely on the vitality and electricity of the nervous fluid, nervous power, vis vitæ, or power of life, or whatever the life in the body is, or can be described by, in the ganglionic or organic nerves, is as established and undisputed a fact as the circulation of the blood. I have frequently noticed this in this work, and it is a consideration that cannot be too much kept in view in all attempts either to keep the body in health or to cure disease; for it is an incontrovertible fact, that on the vis vitæ, or electricity of the fourth order of nerves, depends the life of the body, the action of the heart, the flow of the blood through the veins, and the power of adding to the muscular tissue, out of the blood. The functions of the liver, the kidneys, and, in fact, every principle or minute action of the body, in regard to life and nutrition, depends on the vitality of these nerves, which carry their nervous fluid or electricity into every minute part of the frame, and by that electricity the organized body lives; only lower this to a degree, and the life is quenched as effectually as the light from a taper when it is blown out.

This fundamental law, once discovered and proved true, as it long has been by Sir Charles Bell, and others who have made such new and important discoveries in physiology, so greatly beyond the discoveries of ancient physicians; ordinary observers might naturally suppose it would be the fundamental principle on which medical men would always and at all times act. They acknowledge it in cases of severe injury. They refuse to operate with the knife when this power is evidently very low. They have little hope of what is termed a constitutionally nervous subject getting through a severe operation. They have little hope of a patient rallying when they see this nervous power all but extinguished. The difference between the flesh and the bone of the weakly or nervous patient, and that of a strong person, is not regarded. The consideration with the doctor is not whether the fibre of one body is finer or coarser than another,—no, he looks at the amount of *life* it contains; and that governs his hopes or his fears for the restoration of his patient.

It is true some are scrofulous, and have impure flesh; and he will tell you these patients are bad subjects for operations; they make bad blood and bad tissue. Ask him why, and he tells you (if he knows his profession) that there is a want of vital power in these subjects to properly assimilate the food,—to expel morbid matter,—to vigorously renew the worn-out tissue,—in short, to give life to the frame. All his arguments end in the acknowledgment that it is not the want of more flesh, or of a different texture, but of *life* in it,—that is, the nervous fluid,—the electricity by which the body exists;—all else is mere gas and water, and silica and salts, held together by this wonderful vis vitæ, or nervous fluid. A patient has just arrived on the verge of an attack of apoplexy, who, I believe, was secure from seizure soon after he entered my establishment, because we set to work immediately to stop the causes of the symptoms, and by determining the blood to other parts of the frame, by our fomentations, bandages, sitz baths, foot baths, &c., and regulating his diet. He had been what is called a regular man, I believe, addicted to no excesses, of fully formed frame, and apparently healthy looking. He had erred simply from want of knowledge of the true conditions of health and life; and this information is just what I hope my book will give to numbers, and save them suffering misery and premature death. This patient had taken flesh meat in moderation three times a day, his glass or two of ale at dinner, and the same at supper, with a glass of wine occasionally, and now and then a glass of spirit and water, and cigar. He is not a man of an excitable temperament, and to all appearance would be supposed to enjoy good health.

He came with a friend to my establishment, without any intention of staying on his own account; but he said he was troubled with an uncomfortable feeling in his head, which had been coming on some time. I soon convinced him he had no time to lose in avoiding an attack of apoplexy. This regular man had no conception that his regular habits could possibly be dangerous to life, but, as Dr. Cheyne justly observes, "The daily use of wine or spirits will lead a man of a certain age and constitution to apoplexy as certain as habitual intoxication."* Plethoric corpulent persons, with thick short necks, are looked upon generally as the only subjects likely for apoplexy. This, as medical men know, is an error, as apoplexy occurs in spare persons and persons of delicate habits, from absolute weakness of the vessels in the brain, and from another frequent cause, and that is hypertrophy. Dr. Hope, in his work on diseases of the heart, says, "Eight or nine cases of suddenly fatal apoplexy, and numerous cases of palsy from hypertrophy, have within a few years fallen under my observation. In the majority of them, the patient exhibited what is commonly called the 'apoplectic constitution;' that is, a robust conformation, a plethoric habit, and a florid complexion; in others these characteristics were absent; but the total number of the cases of apoplexy from hypertrophy is much greater than I have witnessed, during the same period of apoplexy from causes independent of hypertrophy." So that whatever makes imperfect or morbid tissue tends to this disease. Hypertrophy, from the Greek "above" and "nutrition," describes a morbid increase of any organ without change in the nature of its substance, arising from an excessive nutrition in some particular part. All these dissertations on the nature, symptoms, and effects of disease, by such authorities as I quote, lead me to reiterate the advice to study the natural conditions of health, and obey them without regard to the cravings of the body.

PARALYSIS, from the Greek, "I loosen, or weaken." "A disease known by a loss or diminution of the power of voluntary motion;" so says Dr. Hooper in his Medical Dictionary. He also says, "it may be occasioned by an attack of apoplexy." It may be occasioned by anything that prevents the flow of the nervous matter from the brain into the organs of motion. He says, "the long-continued use of sedatives will produce palsy, and whatever tends to relax and enervate the system may likewise prove an occasional cause of this disease:" yet he recommends bleeding, blistering, and active purges; also, that "certain narcotic substances have been found occasionally successful, as aconite, arnica, toxicodendron, nux vomica, and opium"! Now it is well known that narcotics, and purges, and bleeding, and blistering will not restore the power of nutrition, and yet in face of this forced acknowledgment of nature's fundamental laws, doctors persevere in tapping the veins and letting out the vital fluid, and punishing the already sinking stomach and bowels by what is utterly opposed to nutrition, in the form of physic. One such case has just been at my establishment; a gentleman of fifty years age, of sedentary habits, a tobacco smoker, taking his allowance of stout and bitter ale, with flesh meat two or three times a day, besides a moderate quantity of wine, regular in his attendance at his office in London, taking purgatives when his bowels would not act, to force them to do so; then by his doctor's advice taking a little sedative mixture when his overworked brain would not allow him to sleep well, here a pabulum and there a nostrum, and these were to stifle every complaint which poor nature was making of the unnatural way in which she was being treated and doctored by the medical attendants of the patient, and afterwards by some of the first in the profession, until she could bear it no longer; for the sedatives, the purgatives, the lancet, and the leeches brought the poor patient into such an inanimate and lethargic state, with the partial loss of some of his limbs, and total inability to bear any mental work, that he was all but permanently asleep. When this climax was attained by the usual legitimate process of the profession, the patient applied to an M.D., one of the very first in London, and the following is his nostrum for raising the vis vita of failing nature:—

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* Hooper's "Medical Dictionary," p. 152.

[COPY.] White vitriol half dr. Extract of camomile sufficient quantity to make 20 pills. Take one three times a day.—Tincture of Valerian volatile two oz. Camphor mixture 4 oz. Take one small table-spoonful in a cup of water, with one of the pills as above.

This prescription was used a short time, but not accomplishing the end in view, was laid aside for the following:—

Calomel one gr. Blue Pill two gr. Compound Extract of Colocynth six gr. Extract of Henbane one gr. Mix in two pills, and take them at bedtime.—Infusion of Senna nine gr. Tincture of Senna two dr. Tartrate of Potash half dr. Manna quarter .oz. Spirits of nutmeg one dr. Mix, for a draught to be taken in the morning.

This again gave neither new life nor vigour to the patient, and the following was substituted, which proved just as useless:—

Citrate of Iron two dr. Distilled Water and Spirits of Nutmeg, each one and a half oz. Mix them, add Simple Syrup one and a half oz. Take one table spoonful in a cup of Camphor Water twice a day.—Extract of Aloes eight or twelve gr. Powdered Ipecacuanha two gr. Soap twelve gr. Mix in twelve pills. Take one at bedtime.

This, being only a repetition of the former drug practice, made matters no better. When he came to me, he had such an amount of pressure on the brain, and was so sensitive to cold, with almost total constipation of the bowels from the long use of the "beautiful" and nice tasted sedative mixtures having by long use done their legitimate work so effectually, that he could not bear washing over in water under 90 deg. A few weeks' gentle fomentation to the stomach and bowels, tepid wash, with our soothing bandages, simple diet, fine air and water, and cheerful society, soon told beneficially on the grateful frame; but the poor patient is a wreck, and will never be restored to anything like sound health again. If he had had advice early, to obey the natural conditions of health, eating and drinking to live, and not living to eat and drink, and sleep, he would not have now been a burden to his relatives and himself too, and a hopeless case of restoration.

I hope to be of far more use in preventing disease than in curing it, and especially in such serious maladies as apoplexy and paralysis, which in most cases are not entirely curable, by pointing out the wisdom and duty of making the appetites subservient to the welfare of the body, a principle which too many have regretted they did not adopt before they were compelled to do so by their inability any longer to satisfy them.

Paralysis can only take place from the lowered vitality of the frame, or of the electricity in the nerves of nutrition and motion, commonly called ganglionic, or organic, by which the nutrition and functions of the whole body are maintained and governed. The will of the paralytic is precisely the same in force as before the attack. The mind sends its messages for action from the nervous centres in the base of the brain, through the medulla oblongata at the top of the spine, by its telegraph wires (the nerves), but when they come to some part of the body where the motive nerves have been by various means deprived of healthy vitality, the nerves of motion (which take their rise as before stated in the spinal marrow, as shown by the engravings) will not respond to the stimulus of the nerves of sensation. The paralytic has often feeling in the affected parts, but cannot move them. There the nerves of sensation are perfect, but they are unable to stimulate the nerves of motion to act. In other cases there is neither feeling nor ability to move. Here the nerves of motion and the nerves of sensation, which always accompany each other, are both deprived of vitality; hence the incapacity for either motion or feeling. The power of expelling or retaining the fæces and the urine often also participates in the calamity, and renders the retention of them either imperfect or impossible. I have often been told by my patients that they have hereditary tendency to paralysis. It is not an hereditary disease only so far as inheriting a weakly constitution. But a weakly constitution, by a strict adherence to the natural conditions of health, and if kept also from the vitiating effects of improper stimulating food, liquids, over-study, debasing passions, and the destructive influence of tobacco, snuff, opium, &c., will be free from any hereditary tendency to paralysis. In another place I refer to a lecture by Mr Solly, of King's College, on the tendency of tobacco to produce paralysis, which is well worth attention, coming from such a high authority. I can corroborate all he says as to the frequency of the use of tobacco causing paralysis. The effects of deadening the nerves by the narcotic power of tobacco, snuff, and opium, and so often rendering them unable to do their work, is easily accounted for. Scores of cases of rheumatism which come under my care are produced by their use; no smoker ever dies a natural death (that is, they do not live the full term of life they would have done, had they abstained from this injurious practice).

By using tobacco, liver disease, nervousness, congestion of the brain, paralysis, destruction of the mucous lining of the bowels, more or less, are the certain consequences, and it is only a slow way of committing suicide, and perverting the power God has given for noble purposes, to the gratification of the appetite.* Paralysis is a terrible affliction. Not unfrequently have persons gone to bed apparently in their usual health, and found on awaking part of their frame paralyzed, and that very often for the remainder of life. At first, hopes of restoration in some degree mitigates the force of the blow, but when first one means is tried, and then another, with little or no relief, the mind often sinks into despondency, lowering still further the vis vita in the nutritive nerves, until further seizure comes on, and life is a burden to the sufferer, and often a burden to those who have to do the most menial offices for the poor wreck. I wish to do all in my power to warn all off these rocks, and to keep the vessel in proper trim for the voyage of life, and well fitted for carrying the soul comfortably till it arrive safely in that blessed country where God has appointed all to live who have obeyed his commands, by keeping the body in subjection to the spirit; influenced by the dictates of true religion. "Be not deceived; God is not mocked: for whatsoever a man soweth, that shall he also reap. For he that soweth to his flesh, shall of the flesh reap corruption; but he that soweth to the Spirit, shall of the Spirit reap life everlasting;"† and hundreds find this true to their sorrow, when the mischief is done, in sowing to the flesh.

Marital excesses, from the nature of the subject, I can only allude to. Persons often know little of their terrible effects until too late for remedy. I have seen many ruined for life by such excesses:

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* THE TOBACCO QUESTION.—Five and a half millions of acres of land are set apart for the cultivation of tobacco. 4,500,000 pounds weight are grown and consumed. Ninety-nine parts out of every hundred are the produce of slave labour. Tobacco contains two very poisonous properties; one an essential oil, which acts directly on the brain and nervous system; the other a narcotic poison, which acts directly on the heart and the circulation. The smoker receives also into his system another property, which is generated by the action of fire, which is known as empyreumatic oil, and which inflicts very serious mischief. For a time the use of tobacco might in any form be resorted to without giving alarm after its first effects were overcome, but very few could venture on its use for any length of time without having very serious penalties to pay.

† Gal. vi. 7, 8.

paralysis, apoplexy, loss of the use of limbs, madness, and suicide are very often the dreadful consequences of these excesses. I have had the great gratification of seeing not a few, who were all but wrecks from this cause, entirely restored by our mild system, and having a knowledge how to live in future.

Nature does not always take the body by surprise; for on questioning persons afflicted with paralysis, I have often discovered that they have had repeated warnings of their attacks in different ways. As the stomach rejects food when it has been outraged by bad diet, or other causes, and thereby gives unmistakable warning of the existing mischief and inability to perform its office, so flying aches and pains in the limbs, local numbness, cramp, coldness of some part, inability sometimes to lift weights from the weakness in the arms, cold shivers down the spine (which, as I have previously remarked, is the centre of motive and sensitive power), giddiness, oppression in the head, &c. When these symptoms do not actually incapacitate individuals for their usual avocations, they are often thought little of until they become urgent, or are attributed to rheumatism—that, to the multitude, undefinable term for many ailments. Whenever a person experiences the warnings I state above, they should at once study how they can improve their general health; and this can only be soundly done by strict attention to the natural laws of healthy condition of the body. Long before paralysis comes on, the tongue will be red, swollen, and often cracked, and white on the surface, red on the sides. When this is the case, serious mischief to the whole frame is threatened, and must inevitably be the result if the causes are not removed. Our bodies, however, are not quite so frail that the derangement of some part or organ will always produce fatal effects. Though it is well for persons to understand their frame, I would caution them from continually studying symptoms of disease; as the mind, by continually dwelling upon such subjects, will often induce disease.

How many watch as anxiously for a motion of the bowels as they look for their dinner, and think that the daily recurrence of the one is as necessary for their existence as the other. The keeping up this mental agitation weakens the very nerves and organs they are so anxious to have in good order to act well. But some go to the other extreme, and take no notice of nature's hints until actual disease has set in. Business or pleasure cannot be interrupted: but nature has borne the transgression of her laws as long as there was power in the body to resist, and there is a line beyond which the strongest constitution cannot go with impunity; for although we do not live in glass houses, we do not live in cast-iron ones. I have not unfrequently had patients who have said that they have had white or furred tongues all their lives, or for ten or twenty years, and that there was no chance of that being cured; and although they have not had good health, yet they have not thought much of it. But I have said, "What, then, has brought you here? for persons don't come to have the water treatment and leave their business occupations for amusement." I have to point to their inability to sleep, to constipation, to rheumatic pains, to their yellow complexions and harassed countenances, and to their having tried for many years to get into a sound state of health by doctors' prescriptions, all without success. They come, in fact, just when nature has given some of her last warnings; and instead of punishing the body by the unnatural means of physic, blistering, &c., I immediately see in what way we can soothe the outraged frame, and coax it into good humour again, by attention to the fundamental laws of health. And the instances are rare in which we find the appeal, by these means, to be entirely in vain.

Paralysis proceeding from apoplexy is the most serious, because there is then mischief in the very centre of consciousness, and generally rupture of some of the fine blood-vessels in the brain (see Apoplexy). Simple paralysis of some local part, as the arms or the legs, without any affection in the head, may be cured. In the spinal marrow, as before observed, the nerves of motion and sensation have their origin. These nerves may be slightly affected by accident, or simply by want of vital power, which is most commonly the case when there has been no affection of the head; and then by judicious bathing, diet, and changed habits, new life is generated, and the nerves recover their original powers. Here our practice of spinal rubbings, cold back wash, cold dripping sheets, steamers, with cold shallow baths, or cold sheet after, cold or tepid sitz baths, fomentations back and front, with dripping sheet after; wet pack if there is vitality sufficient; dry rubbing, wearing wet body bandage, with our plain nutritive diet, and no stimulants, are such safe, natural, and effective remedies. The treatment must be proportioned to the strength of the patient; and if in cold weather, or in weakly cases, have the water 70 deg. instead of cold. The plain diet, as stated in this work, with good air and water, assist greatly to restore nature's powers. Warmth is absolutely necessary in paralytic cases; good thick clothing, if the weather is not warm; and all who can afford would do well to migrate to the warm climates of Exmouth, Torquay, or Penzance, for the winter and spring.

HEART DISEASE.—Many patients have come to my establishment under the impression they had disease of the heart; some have been told so by their medical attendants (as was the case with myself some years ago, when I consulted an eminent surgeon in London). Except in rare cases, my patients have found, as I did, that when the liver was got to act well, and the general circulation regulated by our soothing and invigorating applications, and the passages opened for the easy flow of the blood through the liver and other organs, there was no trace of heart derangement. Many are very unnecessarily alarmed at some irregularity of the pulse, and occasional palpitation. All dyspeptics and nervous subjects are liable to occasional functionary disturbance of this kind, but where actual disease of this organ has taken place, nothing can be done but to mitigate its effects; and this may be accomplished to a greater extent by mild hydropathic treatment, than by any other course. We have had some serious and distressing cases of this kind. and in none have we failed to give some relief. The treatment of course has to be varied according to the strength and age of the patient, and the causes which have brought on the disease. First, the diet is a matter of urgent necessity. See to avoiding anything that is at all difficult of digestion, or of a stimulating kind. Little flesh meat should be taken, and that should be lean mutton, fowl, or game. Avoid beef, and especially hot beef; a little lean cold meat chopped fine, with bread crumbs and a spoonful of gravy, is good, with a little mealy potatoe, asparagus, or cauliflower, but no greens, turnip, cabbage, nor any uncooked or fried vegetables; farinaceous puddings, good, as rice, tapioca, sago, vermicelli, or light flour puddings, with a little stewed fruit and water to drink; bread should be taken in a moderate quantity at one time, as it swells on the stomach; buttered toast and cakes are bad.

If persons with heart disease have not the strictest and most determined resolution to take food with a view to the nutrition of the body alone, and without regard to indulging the tastes and appetites, they are continually in danger of sudden death from eating to repletion; great numbers die from want of this resolution and self-denial. I have known individuals well aware of having this malady, and of their danger, who, unwilling to resist the cravings of the appetite, have passed from their business or quiet fireside, or their luxurious drawing-rooms and social circle, into eternity, totally unprepared for a spiritual existence. The forms of religion they had practised amongst various denominations, with whom they had passed as sound good Christians, had never really awakened them to the great import of the apostle's words to the Philippians: "Whose end is destruction, whose god is their belly, and whose glory is in their shame, who mind earthly things." Those who are left behind inter the body, leaving the soul to the mercy of God, and go on in the same course; some of them to die of heart disease, others of sudden inflammation, dropsy, brain attacks, apoplexy, &c.: not a few of such instances I can now call to mind amongst those whom I formerly joined at table. (See page 33.) If any person should read this who has any symptoms of overfeeding, palpitation of the heart, fulness in the head, &c., let them at once make a resolution to discard all but the plainest food, and reject stimulants, tobacco, &c., *in toto*.

When we first went to take up our summer abode with our friend Mr. Allen, at Riber Hall, I saw his danger from his naturally remarkably healthy constitution; and having plenty of fresh air and little care, his cerebral nerves were not in the least disturbing his nutritive system, but giving it the benefit of its superabundant vitality; and although he was what would then be called a very plain liver, yet he was, as a physician remarked who called upon us, on the highway to heart disease or, what is so nearly connected, apoplexy. The little ale or other stimulants he took, I persuaded him to relinquish, to avoid suppers, and to sign the total abstinence pledge. He is now safe from these attacks; lighter and happier; saves the money for other purposes which he spent in injuring himself and the friends who came to visit him. I have the satisfaction to know the advice I have given on such subjects have rendered hundreds happier, and safe from sacrificing their lives to the gratifications of the appetite.

As to the hydropathic treatment of heart disease, the object that must be aimed at is to draw away from the heart the inflammatory action and the pressure on the weakened vessels, and infuse new life into the muscles. This must be attempted by the gentlest means; as it will be obvious to any ordinary observer, that the heart having to receive and pass through it about a hogshead of blood in the twenty-four hours, the wonder is that it stands its work at all. The blood has to be forced by powerful action through these often weak or stiffened valves and muscular cavities. They are obliged to do their work as long as life lasts. Not one minute can the often almost disabled ventricles and auricles rest from their labour. They must open and close to admit and send out again the blood which comes to the heart, by the clavicular artery, to be propelled with force into the lungs, to come in contact with the air to take its life-giving property, oxygen. We see the effects of the same disease on the muscles in the legs, knees, arms, and wrists being weakened, hardened, or contracted; and those who are in that condition feel the pain of working them in that state. Now in a similar way the powerful muscles of the heart become stiffened, contracted, and inflamed; and when this amounts to a certain degree, the heart stops, and the person dies. I can only of course give, as I have before said, a general idea of the treatment; as it will be varied according to the strength or age of the subject. We first insist upon our plan of diet and rest from the harassing cares of business.

In the morning before rising, and whilst the patient sits up in bed, give the upper part of the body a gentle rubbing with a towel wrung out of water 80 degrees, then dry this part and put on a woollen vest, and let the lower part of the body be done in the same way; and put on woollen drawers, for it is of importance to keep the lower part of the body warm. In the forenoon, have legs up to the calf put into 90 deg. mustard and water, and gradually raise the temperature to 100 or 105 degrees, if the patient can bear it, keeping the head wet with cold water whilst the legs are in the mustard and water, and remain so for from ten to fifteen minutes; and then let the legs and feet be rubbed over with a towel dipped in 80 degrees, and dry rubbed with hand till warm. Afternoon, have the feet put into 90 degrees mustard and water for three minutes, then give stomach pack (see page 52), wringing the towel out of 90 degrees water, and keeping a hot foot-tin to feet; lying thus for three quarters of an hour, but if restless, then only twenty minutes; then on coming out, sponge over the part packed only. Bedtime, apply a mustard poultice just *below* the heart, and keep it on till the part becomes red, then wipe it off dry.

It is very useful in these diseases to take long sitz baths in 80 degrees water, or the degree of heat that will prevent chillness, remaining in the bath from twenty to forty minutes, keeping the feet warm with the hot foot-pan, or any similar plan, as it is not advisable to have the feet so often soaked in hot water; also 115½. Packing the legs and thighs with strips (see list 214), renewing them when dry, and keeping them so till a "crisis" is well worked out upon them, will be found very advantageous. Sometimes a piece of spongio piline worn on the heart, and kept damp with *hot* water, has been found very useful if it does not bring on irritation: we have used this in cases with good effect. The reader will see, in all the above treatment great care must be taken so that none of the applications produce a *shock*, as that would be highly dangerous. Frequently sipping cold water will be a great assistance to the benefit of the treatment. During syncope or faintness, it is best to undress the person immediately, and apply a mustard poultice to the heart, and put the feet into mustard and water 100 degrees, and if possible the hands also; then dry them well. Rub the other part of body whilst the person is wrapped in a blanket, sponging head and face with cold water, and giving sips of cold water to drink. When the attack is gone over, let the person recline and put mustard poultices on soles of feet, and a warm (not hot) fomenting pad to the lower part of the bowels, keeping the head wet and the rest part of the body very warm.

Dr. Gully says, "But after all, the malady to be treated is irritation of the ganglionic nerves at the pit of the stomach" (which I have so often called attention to). Other scientific authorities take the same view, and the treatises written on the subject are no doubt in the main correct, but I am surprised to see so little said of the muscular structure of the heart in connexion with rheumatic affections of this organ. Rheumatism attacks the muscles and renders them stiff, and often causes chalky deposit; and the great muscular structure of the heart (for it is in fact all muscle, and always in work) must render it as liable, and even more so, to rheumatic affections, as any other muscular structure of the body, and from the same cause, lowered vitality. Ossification of the valves of the heart describes the state approaching to chalky formation. Rheumatic affections of this organ are much to be dreaded, as there is no rest for it, and these muscles, as all other muscles, are liable to lose their elasticity and vitality; and unfortunately we cannot get at them direct with fomentations, or other stimulating or soothing water applications. Whatever is to be done for relief, can only be done very indirectly by the treatment I name, and by proper diet, avoiding all stimulants, much flesh meat, and none at all difficult of digestion, as beef or fat. The great point to aim at, as before stated, is to draw away inflammatory action, which is certain to be present, whether the disease is rheumatic or deposit of fat, &c. All these affections tend to obstruct the circulation, and call upon the heart for excessive efforts to propel the blood, and hence the inflammatory state. The heart is liable to obstruction from deposit of fat in great feeders, and to unhealthy enlargement in peculiar constitutions. Opium, morphia, foxglove decoction, henbane, and such like drugs, will lower the action of the heart when excited, but they do it by lowering the circulation altogether, by putting the brain in some degree to sleep. This will easily be seen to be false practice, never can give nutrition, and certainly leads to mischief and increased action of the heart from weakness.

HYSTERIA or HYSTERICS.—Immediately undress the patient, and commence hard rubbing with the hand, well wetting the head with cold water, and as soon as possible put the person into a shallow bath of 80 deg. water, and well rub the body whilst in, especially round the region of the heart and down the spine; and if the patient is not too delicate, a can of cold water poured down the spine would be very beneficial. When the violence of the attack is over, then put the patient between blankets on a bed, and apply mustard poultices to the soles of feet, and keep the head well packed, and something warm over the bowels; a fomenting can is best. If a shallow bath is not at hand, then let the person sit down in a sitz bath, or large pan, in 80 deg. water, and put the feet into 105 deg. mustard and water in another vessel at the same time, applying the rubbing and cold water as before directed.

ERYSIPELAS.—If only slight, then apply tepid sponging, 70 degrees very frequently, according to the heat of the part, and after the sponging put on a piece of spongio piline over the part affected, damped with cold water; or if no spongio piline is procurable, then apply a piece of linen doubled and well wetted, and then a dry bandage over of mackintosh or flannel. If the attack is severe, fomentation to the parts should be used (as 135 bath list); and then apply the above process of sponging and packing afterwards, frequently repeating till the fever is gone. Constitutional treatment should also be used, such as a warm dripping sheet on rising, an 86 degrees sitz bath for twenty minutes, twice a day, and fomentations on the bowels a quarter of an hour at night (not too hot), wearing the body bandage regularly. Keep the feet in 105 degrees mustard and water during the sitz bath. Sometimes omit one of the above sitz baths, and take a fomentation pack instead. *Fasting* is a great help to the cure of this disease, only taking cold water, with now and then a little piece of bread, until convalescent. We always and easily subdue this formidable complaint by our Hydropathic practice.

SPINAL DISEASE AND INJURIES OF THE SPINE.—When real disease of the spine has taken place, either by a strain of the back or a blow, or from effects of diseases which more particularly affect this part, little can be done, and that only to alleviate. I have not known one entirely recover. I say this to warn persons from those experiments which are so often tried, and which I have known end in total paralysis of the limbs. Females not unfrequently complain of pain and weakness in the spine, especially in the lower part, which has in reality no relation to disease, but proceeds from internal operations of nature peculiar to females, and which is removed by judicious treatment of the sitz bath, bandages, and general attention to the health. Many such symptoms in females are, however, treated as disease, or affection of the spine, and cause permanent injury; we have had such cases from the hands of eminent physicians.

This work is too limited to go into the general subject of diseases of the spine, but I give a list of works which will give more particulars. First, where there is known injury to the spine, we use the spinal compress day and night, wetted three times a day, until it brings out a crisis, and also the body bandage partially; very gentle fomentation to the spine (not hot) for one hour, and then sitting on a sitz bath, and washing the spine gently with the hand for one or two minutes, and water nearly cold. Legs put up to the calves in hot mustard and water, ten minutes; this not more than once a day.

Gentle spinal slapping, as at page 58, is good: but any application which strongly stimulates or shocks the nerves must be avoided, the nervous centres will not bear it. Keep in a reclining position as much as possible, and adopt the simple diet recommended in this work. All stimulants, narcotics, and tobacco are bad; much flesh meat to be avoided; anything that is heating is highly injurious. Warm clothing should be worn in cold weather, as the nervous vitality of the whole frame is greatly lowered. Should the patients be induced to use lotions, blisters, or setons, they will certainly repent, but having once used them, regret will be of no avail.

If the calico spinal compress does not keep warm, use spongio piline.

LOSS OF VOICE.—On rising, have the chest and throat rubbed with 70 degrees water, till red, then wet pack the throat, and put on a dry spongio piline chest compress, and a piece of new flannel round the bowels; then put the feet into 100 degrees mustard and water for three minutes, and wipe them with a towel dipped in 80 degrees water, and *dry* rub with the hand. In the forenoon, put the feet and legs up to the calves into 100 degrees mustard and water for ten minutes, and rub the chest and throat again, as on rising; then pour a can of cold water over the legs, and dry rub them with the hands till warm. Afternoon, take a running sitz bath 80 degrees for ten minutes, and daily reduce the heat of this bath till it can be taken cold; rub the chest and throat again as before. At bedtime, repeat the rubbing on the throat and chest, and put feet into hot water two minutes, then put on wet and dry socks, only wetting the soles of the socks, and keep them on all night. If the above does not speedily produce a good effect, then apply fomentation on the chest morning and night for fifteen minutes before the rubbing, and also put on occasionally a mustard poultice on the chest till it becomes red.

CASE OF BURN.—Our servant, suddenly taking off the kettle from the gas stove, and leaning over, the large jet of gas came in contact with her face, and rather severely burnt her. The face was immediately washed over with brown soap and water, as hot as she could bear it, then steamed over a pan for half an hour, the soaping repeated, and the steaming again repeated; afterwards, a spongio piline mask, sprinkled with hot water, made to cover the face, with holes for the eyes, mouth, and nose, was put on, and a cold wet cloth to the head, and after lying in bed one hour, the steaming was again repeated, the mask kept on all night, and by morning the case was all but well; she laid aside the mask, and felt no inconvenience. Had cold lotions been applied, or oil, or grease, it would have been a serious case. If spongio is not at hand, calico, wrung out of hot water, and covered over with flannel to keep the warmth in, will do.

BURNS AND SCALDS.—If the burn or scald is upon any part where steam can be brought to bear upon it, immediately get a pan of boiling water, and put some cokes off the fire into it, and hold the part over the steam, covering that part of the body and the pan of water with flannel or something woollen. After doing this for twenty minutes, then put a cold wet bandage of linen or soft calico several times round the limb, or a large piece, if it is on any other part of the body, then some mackintosh or oil silk over the wet linen, and new flannel over all; if no oil silk or mackintosh be at hand, then put plenty of dry calico before the flannel bandage. Keep repeating the whole of the above three times a day till all inflammation is removed, then proceed with all the bandages, without the steaming, till the place is well.

WHITLOWS, OR GATHERINGS ON FINGERS.—Place the finger in a glass of water 80 degrees, or hotter if inflammation is strong, three times a day, fifteen minutes each time; then pack the finger and hand, or put a spongio piline bottle on finger kept wet; then twice a day place the elbow in cold water, and the cure will be hastened by packing the arm also. No. 214 in list.

ULCERS, WOUNDS, and Rheumatic Pains in the Legs and Thighs.—Put the legs into a leg bath 90 deg. cover the parts affected. The object of this bath is to act as a stimulant; and may be taken for an hour, and sometimes longer; it always accelerates the process of granulation, and causes an abundant suppuration, and consequently quickens the discharge of morbid matter out of the system. The same bath is also applicable to any other members of the body afflicted in a like manner.

PILES.—The following extracts are taken from the new work, "Diseases of the Rectum," by Richard Quain, F.R.S., Professor of Clinical Surgery in University College, London. Second Edition. London: Walton and Maberly. 7s. 6d. It contains four beautifully coloured engravings, of which I give a rough sketch further on (see Index). The work treats fully on Piles and their causes, Prolapsus Ani, Fistula, and all ailments of the seat and lower bowel, and gives an account of 100 cases, and is well worth perusal, only for the physicking recommended, all of which it is evident the author himself has little confidence in, as will be seen by the extracts. All the important points he recommends for prevention or cure can be accomplished by our Hydropathic plans, without one grain of medicine. As to the cure of Piles in some of the stages, surgical operations are absolutely necessary, but not physic.

"HÆMORRHOIDS: PILES.—The technical term, strictly or etymologically regarded, means a discharge of blood merely. Though at one time used in a more extended sense, it has been restricted for a very long period to disease affecting the rectum; and vascular tumours of that part, whether attended with a discharge of blood or not, have been named hæmorrhoids. Certain distinctions are admitted by surgeons:—thus, a very old one, according as there is or is not a loss of blood, 'blind' or 'bleeding piles,'—'hæmorrhoides cæcæ' or 'apertæ' of ancient surgery; and again, according to the position, whether the tumour be in view or concealed within the bowel, 'external' and 'internal.' These distinctions are preserved, and we shall by-and-by see that, like most things which stand the test of time, they are not immaterial, inasmuch as the position of the tumour, and the condition indicated by the terms referred to, have their influence in determining the method of treatment. Why this is so, we shall see hereafter. The disease seldom affects the very young; but it is remarkable, that few persons attain to middle life without suffering from it more or less. It is met with equally in both sexes. The degree in which it affects different persons is very various, and it has a tendency to increase if unchecked.

"You will find it stated in books that enlargement or induration of the liver is a cause of piles; so also, that abdominal tumours, and pregnancy in the female, give rise severally to this complaint. The statements are quite correct. I have repeatedly seen examples of hæmorrhoids existing in connexion with each of these conditions, and probably occasioned by them; but in far the greater number of cases the hæmorrhoidal complaint exists without any other appreciable organic change. For the origin of the local disorder in our patient, we must, therefore, look elsewhere. I found a patient that had, for a few years, led a very inactive life; that he was in the habit of sitting in his chambers nearly all day, and up to a late hour at night, only relaxing when he went to dine at his club. He ate a full dinner usually, and drank a moderate quantity of beer and wine. Frequently, in consequence of a feeling of fulness and throbbing in his head, which interfered with sleep, this gentlemen of his own accord resorted to the use of purgatives, and, under eminent advice, he also took, during some time, various medicine—among others an alkali with hydrocyanic acid. These means, however, produced no lasting improvement; and it is not probable that any drug would have been permanently beneficial while the habits of the patient continued unaltered. For, with such a course of life, while blood was formed and doubtless in abundance, there was but little demand for it, so to say, except towards the brain and the digestive organs. The muscles of the limbs were little used. The skin was inactive. So, likewise, judging from the torpor of the bowels and the character of the evacuations, was the liver. By such circumstances the congestion of the head and of the alimentary canal may be reasonably accounted for.

“But how in such a case is relief, and that as permanent as possible, to be afforded? My answer is: Not by the continued use of drugs, but by attention in detail to the various circumstances which conduce to the maintenance of a healthy state of the system. Thus, while the diet is regulated—made more moderate in quantity as well as less stimulating, *the skin is to be thoroughly cleansed by daily ablution.* Active exercise is to be taken, for at least a couple of hours each day, afoot or on horseback, and the effect of this, it is to be borne in mind, is all the more salutary *if a degree of perspiration accompanies the vigorous exercise of the limbs. By the action of the skin* (*which is one of the great emunctories of the system*) *and the increased nutrition of the muscles, the internal congestion, before adverted to, is removed or prevented;* and a feeling of lightness and elasticity—of health, in a word—is substituted for the former feeling of heaviness and discomfort. It is not always easy to convince people that medicine cannot safely be made a substitute for moderation in diet, pure air, and exercise of the limbs—in short, for all the natural circumstances which experience shows to be necessary for the preservation of health. To the person of sedentary habits, the aperient drug gives relief for the moment, as it not only evacuates the bowels, but also unloads the blood-vessels of the abdomen in a degree, by exciting a serous or watery discharge from them. When absolutely necessary, and for an occasion, the purgative is as salutary as it is an efficient aid in the removal of the attack of illness. In this way it is really beneficial; not so, however, its continued use. Besides, the fact is not to be overlooked, that the frequent resort to aperient medicine creates a strong desire for the continuance of the practice, owing, it is said by those who experience the effect, to the sense of ‘ease and lightness’ it occasions. So, in time, a habit is created—one, too, as difficult to be got rid of as any other habit.*

* “A few years ago a case came to my knowledge which will serve to illus-

ERRATA. (page 119.)

New Milk Jelly.—One quart new milk, three ounces lump sugar, half-ounce isinglass, boil the whole until the isinglass is dissolved, add laurel leaf or lemon peel to flavour, then strain through sieve and put into moulds to cool. Never use flavouring essence.

"For the general management of the class of cases alluded to in the foregoing observations, the rules laid down in a former part of the lecture are applicable. An acute attack is conducted to its termination in the same way. When the state of the local malady admits it, active exercise is to be taken, so far as the condition of the patient's strength allows. The same attention to the state and the functions of the skin is required; so likewise is the same watchfulness respecting the quantity and the quality of the food to be observed. Yet, even with good management in these respects, habitual sluggishness of the bowels often accompanies the hæmorrhoidal disease. The use of aperient medicines then becomes necessary. When resorted to, the aperient medicines ought to be such as unload the bowel with the smallest degree of irritation, and the quantity as small as shall be sufficient for the purpose. *Purging or looseness of the bowels gives rise to pain, and aggravates the local malady.* That condition is therefore to be guarded against as much as constipation. A few words may be added respecting the medicine to be used when medicine is absolutely required. Common opinion has assigned to castor-oil a character of blandness (probably because of its being an oil) to which it is not entitled. It is an efficient purgative; but, except when given in minute quantities, it usually irritates the rectum. At the same time, it is expedient that no effort should be wanting to attain the end in view by the management of the diet and attention to other natural circumstances, rather than by direct action on the canal, either by the use of drugs, or of the other expedient adverted to.* The points which I propose to notice in connexion with the foregoing cases are these:—The nature of the hæmorrhoidal tumour; the probable cause of the disease; the circum-

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trate the baneful influence of the habit of using purgative medicine. The commander of a merchant vessel, a person of robust frame and much ability in his profession, began to take Morrison's pills to relieve constipation of the bowels at sea. Continuing the use of the medicine, he became in time reduced to extreme debility from constant purging. At length the appetite grew by what it fed on to such an extent, that when confined to his bed from mere weakness, and unable to swallow the pills whole, the unhappy man had them bruised in a mortar, and took them with a spoon. He died of the drug."

* MILK JELLY for delicate persons, and good for all. Bake two calves' feet in two pints of water and the same quantity of new milk in a jar, closely covered, for three hours and a half; a bit of lemon-peel baked in it gives a nice flavour; add a little crushed lump sugar if required. When cold, remove any fat from the top. If no calves' feet to be had, half a packet of gelatine will do, or isinglass.

YEAST.—One pound of malt, one ounce of hops, boiled in six quarts of water two hours; strain it, and when nearly cold add half-pint of yeast from last making, mixed with a table-spoonful of flour and one ounce of salt. The yeast, put in a cool place, will keep good six weeks, at least, in stone bottles well corked, and the corks tied down. Some brewers' yeast may be used for the first making; afterwards save some for a fresh making.

MEAL AND WATER.—A very excellent drink to prevent constipation and comfort the stomach. Take a tumbler and put into it two table-spoonfuls of Scotch oatmeal; fill up with water over-night, and on rising stir it with a spoon and drink the liquid part, leaving the meal.

stances which rendered an operation necessary; the object and plan of the operation.

" *Structure of Hæmorrhoids.*—Before proceeding to comment upon the details of the foregoing cases, I propose to lay before you some account of what a hæmorrhoid is—a matter upon which some diversity of statement will be found among surgical writers. The subject will be the better understood if the natural disposition of the blood-vessels of the rectum be first examined. This, moreover, will have its use hereafter in other parts of our inquiries; and it is the more necessary we should enter upon the investigation, inasmuch as there is not, so far as I know, an adequate account of the arrangement of the vessels in the intestine itself, to be met with in books of anatomy or surgery.

" The rectum is largely supplied with blood. The vessels as they are seen on its outer side are large, and they send branches at intervals through the muscular coat, which ramify between it and the mucous membrane. Independently of their position as regards the coats of the bowel, the arrangement is not the same throughout the rectum. Over the greater part the arteries and veins, taking both systems of vessels as following the same course, penetrate the muscular coat at short intervals, and at once divide into small branches, which hold a transverse direction, and form a network by their communications with the subdivisions of other similar vessels (plate 1, *b*, Piles). Towards the lower end of the bowel, for the length of about five inches, the arrangement is very different. Here the vessels have considerable length, and their direction is longitudinal. Penetrating at different heights, they are directed in parallel lines towards the end of the gut. In their progress downwards they communicate with one another at intervals, and they are still more freely connected near the orifice of the bowel. In this place the arteries all join by transverse branches of good size (plate 1, *a*). The veins form loops, and inosculate with equal freedom (plates 2 and 4).

" The alteration of the veins from which the hæmorrhoidal tumour results, takes place in the loops, which they form inferiorly. As would be expected, the change is progressive. At an early stage, dilatation occurs, which in one part is gradual—fusiform (plate 2). In another it is abrupt, starting suddenly out from the end of the loop into a rounded pouch. A degree of elongation of the looped part accompanies these changes; so that the vessel is lowered beyond its natural level (plate 2). During these alterations, the dilated vein still circulates fluid blood. In a more advanced stage, the dilatations are still further enlarged, and they are found to contain clotted blood, or fibrinous matter. From the aggregation of veins thus dilated in different ways and in different degrees, loaded also with blood, or one of its elements more or less solidified, the hæmorrhoidal tumour is formed. The rounded masses which fringe the end of the rectum in plates 3 and 4 were soft and pulpy, and they appeared on section to be no more than coagulated blood, which, however, did not escape, and did not admit of being turned out of the general investment, as it would be if the whole were blood. When ravelled out as far as could be done, and inspected with a lens, the swellings were recognised as consisting of veins looped and dilated in the manner before mentioned. They were also found to be an extension of the veins above them, which were themselves enlarged, tortuous, and thickened throughout (plate 4)."

Hydropathic Treatment of Piles.—The first point to attend to is to improve the general health, and especially to procure natural action of the bowels. This is done by general treatment, dripping sheets, wet packs, fomentations to the bowels, and the sitz bath, according to the strength, circumstances, and condition of the patient. The sitz bath should be freely used, but not for a long time cold, except in slight cases. We prescribe it fifteen minutes at 70 degrees, and then let down to cold two minutes three times a day. Fomenting pack, as in list 46, is very efficient where there is obstinate constipation, and if this cannot be had, a fomentation, list 64 and 78, hot and cold dripping sheets, No. 2. The wet body bandage should be worn night and day, with flannel wrapper over it in the night, if it is not oppressive; this will soon bring life into the viscera. A 70 degrees sitz bath should be taken before getting into bed, for eight or ten minutes, and be very careful to cover the body over with a blanket whilst using the sitz, to prevent chill. Same in the morning, or cold, before having the dripping sheet or washing sitz. All stimulants and heating condiments must be avoided, and the less flesh meat taken the better. Coffee or tobacco bad. Drink five or six tumblers of water a day, by sips, or more if agreeable. When the long sitz has produced external bleeding, this being a natural effort of cure, then use No. 109 two minutes every two or three hours while bleeding lasts, and then return to the former treatment.

Quain gives some cases of cure, and I again strongly recommend his work for the perusal of any aggravated cases; but beware of the physic, the use of which the author himself so strongly cautions his readers against. After the piles have been subdued, the use of the cold sitz bath should be persevered in regularly; for as piles are liable to return until the bowel has recovered its natural condition, the use of the cold sitz will strengthen and stimulate the vessels in the rectum. The habitual use of the cold sitz will always prevent piles coming on.

SKIN DISEASES.—I have had some desperate cases of this kind. I do not admit any into my establishment, nor allow them to use any of my baths; but they can be treated in lodgings wholly. We had a gentleman with a frightful skin disease in the head, the hair full of scales and scurf, and partially over the face; he had tried a hundred nostrums without relief, and was almost maddened at his state, as he could not go into society, the scurf flying off his head and face on to anything near him. I had no doubt of his recovery as soon as I saw him. I said, the only question was if he would have patience, and give time for a perfect cure to take place. He stayed, had patience, and was perfectly cured; and, as a necessary consequence of the treatment, was thoroughly restored to general vigour of health; treatment to invigorate his general health being at the same time adopted. The hair on the head was first cut close as possible, and a spongio piline skull-cap, wetted three times a day, fitted on and tied under the chin, and made to come well forward. The head was very gently and carefully combed every day, and as much scale got off as possible, and washed twice a day with a strong lather of brown soap-suds. The cure was effected in two months.

In another case, the lower part of the face was attacked; the beard full of scales and scurf, which extended down to the throat and to the whiskers; the lips greatly swollen. Two years' allopathic treatment had been tried in vain. Ointments, caustic, twice salivated, under the idea of purifying the system, by putting nasty minerals into it; and when several eminent practitioners had been baffled in their attempts to give any relief, the last surgeon under whom the poor patient had put himself said he must now try some desperate remedies. The patient must go to a country village, where he could have good air, and he must screw his courage up to the standing point, to bear the operation of having the fungus and scales burnt off entirely with caustic, to eradicate the unnatural growth, which extended from one to two inches in thickness round the jaws, chin, and throat. Just when he had made up his mind to submit to this terrible ordeal, he was advised to come to me for advice. He came, and was entirely cured, and without pain, and without any applications to the diseased part, but damped spongio piline made to fit all over the part, and re-wetted, by sprinkling with warm water three times a day, washing the part with brown soap-suds, and sponging it off with warm water, taking care to keep the spongio as clean as possible, by having two or three sets, and cleansing them. This first operation, as will be seen, was only negative treatment, and to keep the part soothed, and above all cleansed, and preventing the poisonous infectious matter from being re-absorbed. The point to depend upon for the casting off the disease was our universal remedy,—attack the malais, the disorder in the irritated, inflamed mucous membranes, in the stomach, liver, and bowels. Put plain, natural nutritive aliment into the stomach, raise the vitality of the nerves of nutrition, mildly stimulating them with our nice fomentations and packs, with steam baths and bandages, comforting the liver and bowels by the same plan, determining the contents of the gorged congested blood-vessels in the viscera to the surface, open the seven or eight millions of pores in the skin to let out the waste morbid secretions, which had never been thought of, for the doctor's attention was drawn to cure the chin only. The skin and the stomach, the liver and the bowels, were, however, of near kin to the chin, and would not allow the chin to have the benefit of the scientific operations without sharing in the expected relief. Our mild and natural means, without any claim to scientific practice, very soon brought this patient into a sound state of health, leaving nature, good air and water, with regular hours and cheerful society, the credit of curing;—not cold water, physic, or our science. Various eruptive skin diseases, scorbutic and other kinds, we have cured by the same means, and never failed in a single case; and the vast advantage of a cure by these means is, that the entire frame must necessarily be renewed at the same time, and without any painful or disagreeable operations.* It is marvellously humbling to own one is only a nurse after all, and with one nostrum to cure all,—that treatment which raises the vis vitæ in the ganglionic nervous system. And no physician can cure but by doing this. I have recently had a gentleman, age twenty-five,—tried every means of cure he could hear of,—came to me. I could assure him of a perfect cure; he has been now five weeks, and is nearly well.

I visited a retired physician last year,—one who had been in the highest practice. He said he was formerly called in consultation with another M.D., of longer standing than himself, to the case of the brother of the late Sir Henry Halford, surgeon to the king. The other physician asked my friend what he thought of the case; "Nay," says the latter, "you are my senior, and I wait to have your idea of the case." With a shrug of his shoulders, he said, "I must own it is rather humiliating to confess that the longer I live to practise, the more I see the mischief of drugs. I give bread pills usually, and trust to nature, diet, good air, insist upon quiet, no stimulants, and patience; and, except in very urgent cases of acute disease, or surgical ones, the practice answers best."

ASTHMA.—There are various kinds of this affection, and mostly incurable; but we have often given great and even permanent relief by the following plans. Foment the chest, and then apply half chest spongio piline damped compress, and wear this or a calico chest compress whenever the breathing is difficult; and also wear a wet body bandage occasionally, to keep the stomach and bowels in order, using the sitz bath, but not cold, say 80 degrees, 177 constant.

Maw's Respirator† will be found of very great service in going out in cold or foggy weather, and may be kept on all night without inconvenience; this is very necessary if the asthmatic subject sleeps in a cold room. Stimulants, tobacco, or much flesh meat aggravate asthma greatly. During a paroxysm, a hot water shallow bath ten minutes; and after a tepid wash down, is very good; or, if shallow cannot be had, a hot sitting bath and a sponge over in tepid water. Throat pack very useful. Over-excitement, late hours,

* See work on Skin Diseases, at the end.

† Solomon Maw, 11, Aldersgate Street, Price 5s., or 5s. 4d. per post.

irregular living, will aggravate the chronic state of the disease. Warm clothing in winter is essential, if the climate be cold.

DROPSY.—The varieties of this disease, and the causes, can only be studied in the works of professional writers on the subject. The ordinary form of dropsy, with the swelling of the whole body, is one we have very successfully treated, when it has not been the result of heart disease; even then life has been prolonged, and ease given up to the moment of death. One such case was that of a female of eighteen years of age, who had been given up by her doctor: he had assiduously attended her, and done everything in his power for her relief, but in vain, and he expected her death every hour. In this state she was removed from her cottage, some distance from our house, to our free hospital, at the risk of dying on the way; but it was her earnest desire, for she greatly dreaded that death she was not prepared for. We began with fomenting her stomach and bowels as she reclined in an easy chair, and steamed the legs; afterwards wiped the body and legs with a towel wrung out of tepid water, then packed the legs with strips of calico wrung out of warm water,—mackintosh strips over, and then flannel to keep in all the warmth possible. Spongio piline damped with warm water to the stomach and bowels when not fomenting; once a day dry rub the legs by two persons. The swelling in the trunk was reduced nearly to the natural size, the appetite returned, and she enjoyed her light dinner on the day she died, which was upwards of three weeks from the time she came. Her departure was without pain, and in perfect assurance of the salvation of her immortal soul. She called for some of her former companions to see and hear what religion could do for the dying. The heart having been irremediably diseased, there was from the first no hope of restoration; but it is no little advantage of our system to give ease of body without clouding the mind with opiates—the only resource of the doctor to relieve dying agonies. Several similar cases in advanced life have been similarly relieved.

The editor of a northern newspaper, about thirty-five years of age, came to me this summer, dropsical, flesh flabby, and so pasty, that I could imprint my finger almost in any part of his person. His medical attendant said he had done all he could for him, and he then (as is usual with the majority of our cases when physic, blisters, setons, &c., have been tried to restore vitality and failed) came to my establishment, and was much surprised and pleased to hear me say his recovery was certain, if he would give me time and obey my directions strictly. I began with gentle fomentations to the stomach and bowels, with tepid dripping sheet after, and also hot and cold sheets; gentle vapour five minutes, followed by shallow bath, 70 degrees; dry rubbing all over by two men, sometimes with, and sometimes without a little dry mustard; then, without washing, replace the wet body and leg bandages—sometimes steamed the legs only; giving an 80 degrees sitz bath for fifteen minutes, and one minute cold—watching the strength, and only giving as much treatment in one day as his low powers could bear. Four or five tumblers of water per day were taken by sips,—wet body bandages were worn night and day; spongio piline at first, as a calico one would not give sufficient heat, but when it would, we substituted calico, which brings out crisis quicker. After three weeks he was covered with crisis, which discharged freely, and on his legs and ankles to such an extent, that it ran into his shoes. He was in a pitiable state, and despaired of recovery. I told him I had not the least concern for him, or doubt of his entire restoration from the first, having perfect confidence in our appeal to nature by such natural means. He has long returned to his duties, and has written to me this week, saying he is in perfect health, and has stood the fatigues of a contested election without any inconvenience.

Often the legs are swollen merely from weakness. We see to renovating the stomach, and getting good functionary action of the liver, &c. Pack the legs as No. 214 night and day,—steam them once or twice a day, and pour tepid water over them, and dry well with towel, then dry rub with hand for five or ten minutes, and replace the packings. Every other day give a leg bath to the knees in mustard and water 105 degrees, then wipe with a towel wrung out of cold water, then dry rub with a towel and hand, stroking downwards always in these cases; give little flesh meat, but our usual diet, no stimulants of course. The more we see the invariable response nature makes to these natural appeals, the more confidence we have in our plans. There is nothing punishing—nothing in the treatment the body shrinks from.

CASE OF DEATH FROM ULCERATION OF THE BOWELS.—A gentleman, aged 28, apparently of regular moderate habits, but taking his daily allowance of wine and spirits, came to me complaining of frequent diarrhœa and weakness in the bowels, for four or five years past. I soon discovered from the state of his tongue, and other symptoms, that he had been gradually producing inflammatory action of the mucous membrane lining of the stomach and bowels, and I told him he had no time to lose in having proper remedies applied, and of a different nature from the physic he had so long tried in vain, and which, he said, had never given him but temporary relief.

I advised him to think nothing of his business, and give himself up to the treatment for a considerable time. After five weeks' stay he was so far restored, that he considered himself well enough to return home. I, however, advised him not to do so, although he was a new man in comparison with what he was when he first came to the Establishment; the bowels were quite regular, and no pain, and his tongue all but clear. He did return home; and although I had impressed upon him the absolute necessity (if he valued his life) to strictly abstain from all intoxicating liquors, and to diet himself, and to use the baths prescribed, yet he did not entirely comply, and it was the cause of his death, about eight months after, at his own residence.

Not a few I can remember who have acted in a similar manner, against my most urgent advice, and while I have pointed to such fatal transgressions of the conditions not only of health but of life, yet in more cases than this have they expressed their regret that they did not follow my advice, when it was too late to do so.

When there has been a long state of deranged health, and more especially disease, a sound cure and power to resist the effects of the ordinary wear and tear of life is not reasonably to be expected from even a few months' treatment, and after apparent convalescence. The frame must have time to be thoroughly renewed in a natural way; and this is why many will not try hydropathic treatment. The doctor's patching nostrums—his sedatives, and tonics, and purgatives—his leeches and lancet—his setons, and issues, and blisters, and counter-irritant ointments—his cupping, and other horrors—are all found so handy, and applied without trouble; and often, too, attended with the pleasant company of a gentlemanly intelligent man, who knows a good deal of what is passing in society and in the world. He calls upon them for little self-denial, because he knows it is useless to offer such advice, or to make recovery a condition of obeying it. Added to all these conveniencies, the probability is, that they have a gentleman to deal with whose honour or sincerity no one can doubt, however they may differ with him as to his mode of practice; for it is notorious that in no other profession do we see more or such an amount of services done gratuitously, and without any hope or chance of payment. Our country surgeons range over our hilly county many a dreary night, knowing there is small chance of pecuniary remuneration, nor do they ever refuse to go on that account. Mankind, it is to be hoped, will in time be wiser than to sacrifice life for business or the conveniences of physic.

Not having heard of my patient, referred to above, for some months, I made inquiry, and found he was not expected to live many days. I immediately sent off an experienced bath-man to his residence, a hundred miles off. He found his old complaint upon him, and greatly aggravated. He had been so far renovated by his visit to my place, that he stood his labours well for some time after his return; but the departure from the strict regimen, and taking stimulants, and overworking the brain, began by degrees to bring on the irritation in his bowels, when thinking he was not yet much amiss, he had recourse to physic; and now the course of the disease was rapid, and his doctor told him there was no hope of life. The patient had some of our apparatus which he took with him from my establishment. My bath-man began with gentle fomentation to the bowels, then towel pack, the towel wrung out of warm water; and after the pack, sponged over the parts with tepid water, soaping first. The throat was packed night and day, as his mouth and throat were so ulcerated that he could with difficulty swallow liquids. When feverish or restless, the operations were repeated, and having a napkin wrung out of warm water almost constantly over the stomach and bowels (sponge sprinkled with warm water would have been better, as it would not have required renewing often). A tepid sitz bath was given, but he was so low that it could not be repeated.

No urine had been passed for several days until these applications, when he passed it freely, and was greatly relieved. The relief to the mouth and throat by the throat pack was also complete. The poor invalid was before, choking with the burning fever there. He could soon swallow easily, and began to take some mucilaginous food, and rallied much; he took milk thickened with ground rice and flour during the nights. Free from pain and, comparatively, from fever, he could calmly consider his nearness to the bourne which, once crossed, is never re-crossed to the business of life; and he was grateful to God for the season of reprieve and of ease, which he used with great profit and comfort to his soul's welfare. His life was prolonged by these means five weeks, when he departed, as he had been from the first applications, without pain. He had all day looked forward to six o'clock p.m. as the hour of his departure, and a few minutes after the clock struck he breathed his last, to join the great meeting he said he had to attend at that hour, adding another warning to those left behind, not to make business or the customs of the world a greater consideration than God's immutable laws for the comfort, efficiency, and existence of the body. The following letter I received about a week after his death.

"Dear Sir,—Having been an eye-witness of the beneficial effects of the Water Cure in Mr. . . . . . . case, in this town, it seems right to communicate to you what I saw. The judicious way in which your Mr. Frost treated Mr. . . . . applying the water so variously and skilfully—that under God his life was prolonged for a much longer period than otherwise. Had Mr. R. been allopathically treated, I believe that there cannot be a doubt but that, humanly speaking, his death would have occurred long before. Not only was life prolonged, but from the soothing effects of the water applications, he had not the least pain or suffering. Violent dysentery, and a deeply ulcerated alimentary canal, were calculated doubtless to give much torture and distress, yet not the least symptom appeared."

The use of tobacco being so often the cause of Ulceration of the Bowels, the following remarks by the late Dr. Hall may, I think, be useful:—

From the "Lancet," of October, 1857.—A NOTE ON THE EFFECTS OF TOBACCO.—"When I first occupied my present lodgings, I was struck with the almost constant appearance of a young man, obviously of fortune or independence, who walked up and down on the opposite side of the road, half-way between my window and the sea.

He was tall, robustly made, but stooped, and his whole gait and appearance were slow, slouching, and inanimate. I could not imagine what should induce a fine young man so to occupy himself, or rather to pass hour after hour sauntering up and down without occupation. At length the mystery was solved. I observed, what I had not discovered at first, that the youth *had* an occupation; between his hand and his lips he constantly held a *pipe*. He thus, therefore, spent his time dreamily away, without energy, without object, in a state of constant half narcotism. I have known members of my own profession so to devote themselves to this narcotic, as utterly to lose the energies requisite for activity in study and practice, and consequently for success;—a room, a dress, devoted to the purpose of smoking, hours spent in the indulgence of the solitary vice; half narcotism, half anæsthesia. I would not boast, but I think I may affirm, without boasting, that I have *laboured* in the cause of medical science, during two-fifths of a century, more than any one. This journal bears testimony to these labours, and with whatever success they may have been crowned, I am firmly convinced that I never should have accomplished them had I been a smoker—had I absented myself from society, and shut myself up in a peculiar room, and in a peculiar dress, the impersonation of *self*, solitude, and oblivion. I write this for the warning of my younger professional brethren. It is plain, tobacco acts on the cerebrum, the medulla oblongata, and the heart; its effects are stupidity, defective breathing, defective action of the heart—forms of debility, and impaired energy. These phenomena are primarily physical and physiological; no doubt, the blood is poisoned, and in its turn poisons the brain, the medulla, and the heart. Sometimes, in those who smoke for the first time, these symptoms occur in a form even of danger. Such a case occurred to me many years ago, and was published in the *Edinburgh Medical and Surgical Journal*, in 1816. Of this case I propose to adduce a brief extract:—

> “ ‘Mr. J. H., aged nineteen, unaccustomed, except for a day or two before, to the effects of tobacco, smoked one and a part of a second pipe. He became affected by violent syncope, and by violent retching and vomiting. He returned home, complained of pain in the head, undressed himself, and went to bed. Soon afterwards he was taken with stupor and laborious breathing. He was found in that state by the medical attendant. The countenance was suffused with a deep livid colour; the eyes lost their brilliancy; the conjunctivæ were injected; the right pupil was exceedingly contracted; the left was much larger than usual, and had lost its circular form; both were unaffected on the approach of light. The hands were joined, and in a state of rigid contraction; the arms bound over the chest; and the whole body was affected with spasmodic contractions; the breathing was very stertorous.’

“From these several symptoms we may pretty accurately judge of what is going on in the brain, in solitary smokers, and in a minor degree in all smokers. The robust may support the effects of tobacco; but the feeble will assuredly pay the penalty of langour, inertia, and incapacity. I have known more than one instance of members of our profession, both in its higher and lower ranks, making shipwreck of their success and fortune, by addiction to solitary and sedentary smoking."

Experience has fully convinced me that Total Abstinence from ale, wine, spirits, or any stimulating liquids, is absolutely necessary in all cases if health is to be restored or preserved. I find by drinking water only I have enjoyed a freedom from headache and a buoyancy of spirits I never enjoyed whilst taking any stimulating beverage, and I also find my strength increased, and that I can take a greater variety of food without inconvenience. I strongly recommend a trial of the same plan to any and every one.

HYDROPATHIC APPLICATION IN EXTREME WEAKNESS, AND TO THE DYING.—I shall not forget calling upon a late dear friend, a lady nearly eighty years of age, who was dying from natural exhaustion of the whole frame. Her sufferings were great, simply from the stomach, liver, and bowels being worn out; the vitality and power of action all but gone. Naturally of a healthy constitution, life lingered in the body while there was but a spark to keep the heart moving. On the top of the chest of drawers in the room was a whole row of physic bottles. The doctor, kind and attentive, and celebrated for his skill, had done his utmost to give relief, but was entirely unsuccessful; even morphia, and the most approved sedatives, failed in the usual effect they produced in the earlier stage of the illness. The stomach had lost its heat and vital power to assimilate and dispose of its contents any longer. I advised gentle fomentation at once to the back and front of the body, with one wrung-out flannel pad, covering the pad with a piece of light mackintosh to keep in the heat, as the fomenting can might be too heavy. This gave immediate relief, and after it had been on twenty minutes, it was taken off, and with as little disturbance of the body as possible. The parts were then wiped with a napkin wrung out of warm water, and with another soft dry napkin gently wiped dry, having afterwards a broad, dry, warm flannel bandage to put round the body. Whenever the pain returned, half of a fomenting can, wrapped in flannel, was put over the stomach and bowels, and if it appeared necessary, fomenting again, but only on the stomach, as in such cases care must be observed not to fatigue the body more than possible. If the legs and feet be wrapped in hot mustard cloths, and dry over to keep them warm, it will be of great service, and then wrap them in dry flannel afterwards. Water is by far the best beverage in these cases, and that all but cold.

By these gentle means of keeping warmth over the stomach and bowels, nature will be assisted and soothed to the last. Discard all physic whatever. If the bowels should be swollen or uncomfortable, and constipated for days, then apply a gentle warm-water enema. A large piece of spongio piline, sprinkled with a little hot water, and bound over the stomach and bowels, and kept on with a flannel wrapper, or tied on with tape, will keep in the vitality, and do great service. Castor oil, which is generally considered a simple and harmless medicine, Dr. Quain, in his work on the rectum, says, is irritating from its acrid properties, and he cautions against the use of it. Shortly after I attended the case named, a near relative of mine, a lady, nearly eighty years of age, lay in a similar state, and her gratitude to God for the relief afforded by these natural, harmless means I shall never forget. I have witnessed the same effect on young persons dying. It is simply keeping the vitality up by artificial warmth, when the body no longer possesses it naturally, or can bear stimulating internally, which has such a soothing effect on the sinking frame.

DEAFNESS.—We have succeeded in curing or relieving cases where it has resulted from weakness of the nerves, or low power of the excretory ducts, by using general invigorating treatment, and the use of bath Nos. 134, 135, 136.

TOOTHACHE.—If the teeth be decayed, extraction is the only cure; but if the cause be rheumatism, hold tepid water in the mouth until it begins to grow warm, then change it; at the same time, the face, cheeks, neck, and parts behind the ears should be rubbed vigorously with the hands and cold water, frequently dipping the hands into the water. It is well also to rub the gums till they bleed. Cold foot baths and hand baths will also be found useful, as will packing the face also with wet and dry calico, and plenty of flannel: but it is only wasting time to try any other plan than extraction, if there is decay in the teeth, as the pain keeps up an irritation of the whole nervous system, to the great injury of the health; serious and protracted illness we have often seen to be the result of not having resolution to have the tooth or teeth extracted at once.

CASE OF BLINDNESS.—A gentleman residing in London, about forty years of age, came to our establishment to ask if, in my opinion, hydropathic treatment could do anything for the restoration of his eyesight. He had for some years suffered from inflammation in the eyes, and his sight gradually became weaker, though he had observed the strictest attention to the advice of surgeons, physicians, and oculists he had consulted. He had hesitated neither at expense nor self-denial, but all ended in disappointment; and indeed the result was a worse calamity than weakness of sight,—for the last surgeon he was under in London ordered a blister to be applied entirely over the forehead, with the intention of drawing out the inflammation, and as soon as this blister *rose well*, he became totally blind. It was the last outrage nature could submit to: the blister drew away the life of the nerves, never more to be restored. He has been ever since hopelessly blind. I could do nothing for him but invigorate his general health, which became excellent; and if this treatment had been applied earlier, I have little doubt but his sight would have been good. He had been suffering for many years from acidity, and consequent inflammatory action of the mucous membrane of the stomach, liver, and bowels; and the eyes were, as a matter of course, affected. The doctors applied their nostrums to the head, by cupping, often blistering behind the ears and at top of spine, and salivating, until the last eminent practitioner, thinking he would try the front part of the head, and carry his attack on the inflammation by blistering nearer the centre of mischief, gave him a *coup de grâce*, and received his fee! Being a certificated practitioner, and using the lawfully authorised rules of warfare against disease, he came off not only without blame, but with, no doubt, the satisfaction to himself of having tried every orthodox plan in his power. When will the College of Physicians throw aside the dogmas of the London Pharmacopœia and the Materia Medica, by which all surgeons admitted to practice must swear? These codes of cure of disease have been laid down generations back, and are known by the profession to be fallacious in many points; still their mixtures and the application of them to disease must be acknowledged, notwithstanding the absurdity of laying down laws for all present and future times, ignoring all progress in scientific knowledge of the human frame in its requirements in disease.

When will mankind shake off the superstitious regard they have for old-established usages, and think for themselves, and compare the practice and principles of not only surgeons and M.D.'s, but of other professionals who are educated with an idea that they possess a right, by virtue of their diplomas or orders, to assume an infallible authority over their fellow-creatures? This poor gentleman, from overstudying, weakened and deranged his general health. His vis vitæ drawn constantly to the brain to keep up the stimulus there for study, the nutritive process was partly stopped. The optic nerves, in common with every other part of the body, were decaying, and not being replaced until attenuation amounted to that degree, that they were incapable of conveying the sense of sight from the nervous centres in the base of the brain. All the nervous system sympathised; and when, on examination of the patient's habits of life, the doctor could easily see a cause for the ailment, why did he not look to restoring the nutritive powers, instead of prescribing a directly opposite course, draining the life further out? The patient has been a man of most strict moral habits all his life, and guilty of no excess. Stimulants and good living were ordered by one, abstinence by another; then either of these courses was condemned by a third, and so on; it was all striking in the dark, until the poor gentleman's readings were put an end to by total blindness.

CASE OF OVER-WORKED BRAIN ruined by the remedies applied. A medical student of King's College, about twenty-four years of age, studying hard, paying little attention to his health, smoking cigars to soothe his nerves, and taking stimulants (but by no means more than is usually taken) to keep up his spirits. This course was followed by the natural results, congestion in the head and general uneasiness. He applied to the late celebrated Dr. Lawrence, who, according to the orthodox laws of the profession, attacked the suffering part with blisters behind the ears, cupping at the top of the spine, and salivation, by way of cleansing the blood and clearing the bowels; no doubt thinking, when he had drawn out serum and blood from the head, and made a good passage below, the whole machine would be as clear as a newly-cleansed vessel, and ready for anything the patient chose to put into it again. The unfortunate result, however, to the student (who is now in practice as a surgeon) is, that he has been losing his sight ever since the blisters drew the life out of those parts; and if he is called to any patient in haste, he is subject to a swimming in the head, that incapacitates him for immediate action. He is full of rheumatic pains, and sometimes feels difficulty in using his limbs, and a premature old age has been inflicted upon him by one of the most celebrated in his own profession. He will never regain the vitality which has been drawn out of him. He is now convinced of the soundness of the principle of looking alone to the restoration of the powers of nutrition to cure disease, and attempting the cure of a local part through the agency of the whole system. He has experienced much benefit from a partial adoption of our hydropathic plans. I was struck with a remark he made shortly after he had tried our practice and read Dr. Gully's work. "You begin," he said, "with building up; we unfortunately have to begin with pulling down before we can attempt building up." I remarked, when once this pulling down is practised, the frame never recovers the mischievous effects. I wish he dare condemn this principle in the Infirmary.

CONGESTION OF BRAIN AND PERMANENT INJURY, *from irregular living, drinking, seton top of spine, &c.*—A gentleman, age about fifty, naturally remarkably strong and robust, having had perfect health up to forty years of age, began then to feel the effects of irregular living, late hours, tobacco, wine, and spirits. Being very prosperous in his business, and a man of great energy, his naturally strong vital force kept him from feeling the extent of the mischief that was brewing. He went to the doctor when his head was a little worse than usual, or his bowels confined,—got a dose of calomel, and proceeded on the course of ruination to his body. Nature bore this as long as she could, and then set both the patient's vital force and the doctor's nostrums at defiance, and the patient was laid up with racking headache, sleeplessness, and miserable nervous feelings, amounting almost to madness. A rather strong measure was now tried; a kind of combined assault on the vitality of the system, in the shape of blisters behind the ears, salivation, and an issue of three peas at the top of the spine!! Nature never recovered this blow, nor will she as long as the patient lives; a permanent and incurable, uneasy feeling has been set up in the nerves of the head, which nothing can ever cure. The vitality of some of the nerves in the spine and head are all but destroyed, and so weakened, that at the patient's time of life (fifty) restoration is entirely hopeless. If surgeons or physicians ever cured congestion of the brain by these. barbarous applications, there would be some justification for the practice. but they never did, and never will, so long as the principles of the life of the nervous system are what they themselves have discovered, and published to the world in so many instructive and truthful treatises. This patient came to my establishment most unwilling to have the peas taken out of his neck; he had been told that by drawing away inflammation they were his security against insanity. I told him I gave lamb and chicken with the peas I prescribed, and I should order them to be put into his stomach, where they would be far more likely to help to restore the nutritive powers of the body than being stuck in the back of his neck, producing stinking matter. The peas were immediately removed, and the hole cleansed and healed up with water bandages. I had this patient several months, got his bowels soon to act quite naturally, as well as the kidneys. The tongue became clean, appetite good; he could stand any amount of cold baths with pleasure, could walk ten miles at a stretch with ease, and all was right but the occasional twitching at the back of the head, where the peas had been stuck in, with an almost constant sense that something was wrong there, and on exertion, communicating to the head a sort of dull, heavy feeling, although far more slight than formerly, but not preventing sleep. It was, in fact, simple weakness of the nerves from the injury. The good state of tongue, and the general good health, show the cure would have been complete but for the barbarous invention of the peas; and I expressed my wish that the surgeon had tried the effect of the treatment upon himself before he prescribed it to his patient, the same as I try my baths and bandages, to find out by personal experience their agreeable or disagreeable effects.

WOUNDS, CUTS, AND BRUISES.—If in a part that can be immersed in hot soap-suds, immediately, let it be done for twenty minutes, and let the suds be as hot as can be borne. If it be a cut, strap the lips of the wound together with narrow strips of arnica plaster, then put on a piece of spongio damped with hot water. or if no spongio at hand, use thicknesses of linen, with mackintosh or oiled silk over to keep in the warmth. When painful, if it can be done, dip the part in hot water, *without taking off the wrapping;* this is important; we never undress the wound till there is exudation, and the morbid matter gives out effluvia, then have it redressed altogether as above, and repeat the treatment if needed; it is seldom that more than two dressings are required. The spongio or linen will not grow into the wound if the part is immersed in hot water two or three times a day, or even less. If the wound is severe, and inflammation comes on in the limb, wet pack the whole limb, as in list 214, and re-wet the bandages three times a-day. This will stop inflammatory action. Should the wound be in a part of the body which cannot be separately immersed, apply hot fomenting pads, and this treatment as far as it can be done. If the cut is serious, or inflammatory action sets in, it is absolutely necessary to abstain from flesh meat, ale, wine, spirits, coffee, or any kind of stimulants, and, indeed, at all times, if sound health is to be enjoyed. Wear the wet body bandage, use dripping sheets, &c., to open the pores and invigorate the system. We have had some desperate cases, where amputation had been declared necessary, which have very soon been cured by these simple means. In cases where the forepart of the finger has been torn or cut off to all but a shred, it has been replaced, and the finger made whole.

CASE OF CUT IN THE HAND, AND PROPOSED AMPUTATION.—A patient applied to us in much distress of mind and body at the prospect of a surgical operation on his hand. He had several weeks before accidentally cut his hand, and one finger severely, with a rusty turnip-chopper. He sent for his surgeon, the hand was dressed, and an attempt made to cure it. The usual routine of surgical treatment was applied; ointments, cooling lotions, and calomel to stimulate the liver and to cleanse the bowels. The finger, however, as the patient remarked, took bad ways; the inflammation and pain became so intense that he could not sleep, and had not retired to rest for nearly a week; and had he not, at a friend's suggestion, wet packed the arm, the erysipelas which had set in would have destroyed him very soon. A longer and deeper incision was now made in the finger, laying it open to the bone, to allow the matter to come out,—this gave no relief; the place soon showed signs of bad matter and more inflammation; it would not heal, nor give any appearance of healthy granulations forming. The surgeon said he could not hesitate longer to call in further assistance, and with another surgeon in extensive practice, they again examined the finger, and came to the conclusion that amputation would alone save his life. The instruments were produced, but the patient's courage failed,—he declined to submit to it, and applied to us. Now it was evident on a glance at the subject, why these really skilful surgeons had failed to cure the finger without an operation, which, even if performed, would have left the patient in the same critical position. The state of the whole system was thoroughly deranged; the tongue foul, complexion yellow, bowels in an unnatural state, head bad, and nausea, all showing the blood utterly unfit to repair the damages in the frame. This impure inflammatory blood kept up especial irritation and inflammation in the wounded part. The bowels and finger had been attended to; good living and stimulants advised, but this of course only added fuel to the fire. The hand, as in the case of the burn quoted below, was a secondary object with us, and not thought of as the point to cure. We set to work by first immersing the hand in water daily as hot as could be borne for twenty minutes, then, while in the water, the morbid core of the wound was raised with a pair of fine pincers and cut off as it could be borne. The pain was severe. Soon as this operation was over, the whole hand was packed in spongio piline, and the arm to the shoulder wet packed with calico, mackintosh, and flannel. This was repeated only once a day, except it became painful, when the hot water was re-applied, and the packing replaced, but this was seldom required, for the arm was at once relieved, and he went to bed and rested the first night. The relief was not altogether owing to the treatment of the hand and arm, he had before every dressing a hot shallow and tepid wash down, or a steamer or a wet pack. The wet body-bandage was worn night and day; all stimulants, flesh meat, or tea strictly forbidden. Light puddings, bread and butter, and water, or weak cocoa, were his diet.

The patient was not confined to his house three days after this treatment, and soon got well. The hand was cured, with the exception of a stiff joint caused by the application of the knife to the tendons.

CASE OF BURN.—A workman in my employ was foolishly melting some bees' wax in turpentine in a tin vessel over the fire, the mixture burst into a flame, and in attempting to remove it, the handle broke off the pan, and the whole contents—a stream of liquid fire—ran over on to his hand. The skin over the whole hand was completely charred, inside and out. The surgeon was immediately called in. The messenger having informed him of the nature of the accident, he brought with him a sedative draught, and administered it at once, saying it would compose the sufferer and give him sleep. He examined the hand, and applied some ointment with a feather, and a covering of linen, then a poultice, and covered the whole up. The sedative draught was repeated several times during the night, and the patient had, according to his own statement, several "dosing bouts," but awoke with alternate fits of heat and shivering. The surgeon was very attentive, came several times during the day, and re-dressed the wound, and repeated this the following day; at the same time expressing his fear of mortification, and consequent necessity for amputation. The accident occurred on Thursday evening, and the surgeon attended until Sunday evening. I only heard of the accident on Monday morning, and the surgeon's opinion that there was but slight hope of saving the hand. I immediately sent a close carriage for the patient to our free hospital, taking all the risk without hesitation, and with his entire consent. Soon as he arrived, the bandages and poultices were removed, the ointment carefully washed off by sponging, squeezing the warm water over without touching the parts with the sponge. A tea-kettle full of boiling water was thus used; there was no feeling in the hand, the skin was charred, stiff, and cracked, the fingers all in a fast mass. When the hot water was being poured on, the fingers began to twitch, to the great joy of the man; the hand and arm were then steamed twenty minutes. It was remarkable to see some of the turpentine coming out, which had been kept in by the doctor's ointment, and, of course, a source of great irritation. After steaming, packed the hand and arm with wet linen and dry flannel and shawls, and now the hand was soothed, and the irritating matter removed, he rested three hours. The next and principal point to see to, was to raise the vis vitæ or power of life; the nervous system had received a severe shock, deranging the digestive organs, making the man sick and faint. After the dressing of the hand, he was undressed except the arm, and put into our steam-box, and a gentle steamer given; the effects of this revived the whole frame, and was most grateful to the distracted nerves. After the steaming, he had a tepid dripping sheet, then was well dried with a sheet in preference to a wash down, to prevent exposure to the air, then a wet body bandage was put on, and he was dressed. The patient got sound sleep the same night, without any physic or artificial means; this soothing treatment was very effective in giving immediate relief.

The next day the hand was steamed three times and re-packed. The man could not stand without help when he came, but this day he walked out alone, and had a wet pack No. 46 in list, in which he went to sleep. The third day the skin was partially ready for removal, it was white, sodden, and soft, and was cut away day by day, until it was all removed, and left the new skin forming underneath. Offensive matter dropt out as the burnt skin was removed, and with it some remains of bees' wax and turpentine. The fingers were now set quite at liberty. General treatment was continued to improve the general health and keep the body cool; the body bandage re-wetted often night and day, kept the bowels right, with a 70 degrees sitz bath for ten minutes twice a day. A glove of spongio piline was now made, with fingers to fit each to keep them separate; this was kept on and damped night and day, except when removed to steam the arm three times a day. The arm was kept packed with wet and dry calico and mackintosh. A vapour bath to the whole body and a tepid sheet were given every morning before breakfast. There was not the least relapse; in fact the man returned home in a fortnight cured, but the tender new skin would not allow him yet to work. The hand, if at all cold, would contract and be fast again; this, however, disappeared as more life got into the part. The steaming to the arm in this state was as strong as he could possibly bear. Pieces of whalebone were fitted over the glove on the inside of the hand to keep it open and prevent contraction for about a fortnight. The man got to his manual labour in two months, and has now the perfect use of his hand, and there is no scar whatever left.

This again is only being a nurse to nature, not forcing her or dictating to her by unnatural operations. No stimulants were allowed, nor a grain of medicine.

OLD INJURIES OR WOUNDS FROM BROKEN OR DISLOCATED LIMBS, OR HUMOURS.—The effect of the Hydropathic treatment in restoring parts which have been formerly injured is very striking, and shows the sound principles on which it is based. It is an ordinarily admitted axiom in the medical profession, that the quicker the tissue of the body is replaced, the more healthy and vigorous it will be; and that the new healthy tissue thus formed will not bear the presence of effete or morbid matter, but will quickly expel it. We have had a number of striking cases of this description. In the case of a lady, whose arm had been broken eight years before, and which had been weak ever since, although apparently restored, a crisis came out after a week's bathing on the very part where the fracture had occurred. This crisis discharged, then threw off scaly eruption, got well, and the arm was restored to its normal vigour. At the same time (as a matter of course, and, in fact, the cause of the restoration of the arm) the whole frame was invigorated.

Another case of a gentleman with sprain of the ankle joint of years' standing, and which, as usual, had been treated as a local ailment, it being bearable and useable, and, therefore, left to be cured by time, as the heating lotions and blisters did not appear to strengthen it. In a few weeks after he had adopted our treatment for his general health, his ankle became swollen and inflamed, and then began to suppurate; his appetite improved, and his spirits raised, with a new feeling of comfort in all his frame, except the suffering part under process of renewal. This cheered him and gave him confidence until his restoration was completed. This is natural cure; not the effect of science, but simply studying and following nature's laws in keeping the pores of the skin open, cleansed, and healthily stimulating the suffering member by artificial warmth, cleansing away the morbid matter as it exudes, so as not to allow it to be offensive to the new granulations forming; attention to plain simple food, good air, and good water, following nature's hints, not forcing her to submit to man's ideas of what results his pharmacopœia and materia medica practice ought to produce. No, nature will not be dictated to; she has secrets in her laboratories (the glands, &c.) where she forms the delicate compounds man cannot imitate. He is sure to put in too much of one thing or another, or not the right material at all. He aims by mixing up tonics and purgatives, sedatives and stimulants, to hit the mark, but always fails in giving nutrition with the nasty stuff he administers. Our custard puddings, roast beef, and forest mutton distance the utmost stretch of his genius, with the London Pharmacopœia and Materia Medica to boot.

The advantage of a proper use of Hydropathic treatment is shown by the effects it produces in other parts of the frame, except where vital injuries have been sustained by bleeding, setons, physic,

&c., and even in these cases a great deal can be done to prolong life and make it more comfortable, and the body more efficient; this is a great boon to the sufferer. By the other principle of practice, there is no chance of a radical cure being effected. I could give a large number of cases of injuries being thus cured or relieved, and I have always such cases in my establishment. An elderly gentleman, a member of the Society of Friends, recently returned home cured. He came to my establishment quite broken down, the lower part of the legs dark and inflamed, and an issue set, from which exuded offensive matter to such a degree, that he was offensive to himself, and it banished him from the social meetings of his friends. The doctors told him the offensive matter was the safety-valve for the preservation of his life, and if stopped, he would be in danger of death. And believing the doctors' prophecies true as to the direful consequence of the discharge ceasing, he made up his mind to have his legs discharging stinking matter for the rest of his life. When I told him the discharge would not only be stopped, but his health would be renewed, and the legs made whole and fit for company with any healthy legs, he was incredulous. "No, friend," said he, "I know thy good-will, but if these holes are stopped, the consequence may be serious." I said, if you keep a tap in the cask constantly dripping, the contents will in time all run out; and thus with the body. If such holes are not stopped, it will lose all its vitality; we do not turn out such bungling work. Wait and see the effect of our water, our air, our puddings, our lamb and peas, our chickens and rabbits, our stewed fruits, and plenty of cream and new milk, our pure brown and white bread, and the cheerful, happy, sympathising society of the establishment. He did wait; he gave me his confidence, and was made whole, and his life I have no doubt, barring accident, will be lengthened twenty years.

So many cases come to my recollection, that it is impossible to spare time or space to record them, but if any reader wishes to prove the truth of my statements, I will give them references to persons who will, I am sure, gladly testify to the blessing God gave to the treatment used. I have had physicians and surgeons as patients at my establishment, or who rather have come to nurse their natural powers to rid them of serious ailments, and they have one and all expressed their perfect approval of the simple natural means used, as they have in all cases received important benefit. One surgeon who came is surgeon to one of the largest dispensaries in England. But seriously and impartially looking at the effects of the ordinary medical treatment of such cases, how can the medical profession support their boasted claims to exclusive and infallible knowledge of disease and its cure, when they leave offensive wounds not only uncured, but tell the patient such are a necessary condition of their existence? Such remarks are an acknowledgment of their inability to cure such cases.

ABSCESSES.—First wash with common yellow soap and water, and if in a part where steam can be applied, let it be steamed for twenty minutes; if not, foment with hot water for the same time; but neither steaming nor fomentation must be very hot, as, if too hot, it will irritate rather than soothe. Then apply lint or linen folded two or three thicknesses, well soaked in warm water, and put it on as wet as not to drip, and oiled silk or mackintosh sufficiently large to cover it, with a flannel bandage loosely over all, not tight. Whenever it is painful, or much matter exudes from it, frequently replace wet linen. Keep it from the air as much as possible; steaming three times a day. As abscess is only the result of some constitutional disturbance; treatment to renovate the general health should be applied at the same time with the baths and the plain diet recommended in this book, but no stimulants. I have seen abscesses forming in the glands of the neck and elsewhere, absorbed and prevented from coming to a head simply by wearing damped spongio piline, and giving a few fomentations, not very hot, and attention to diet and baths.

POULTICES.—(*J. Shew, M.D.*)—"Some surgeons now profess to use water-dressing as a substitute for poultice. *The two are very different in their effects.* A poultice is made of materials which, in a term far short of its renewal, become sour, and thereby renders the poultice, after the first few hours, an irritating application. The greasy substances which are added to prevent the poultice adhering to the skin do not always answer the end, and soon become rancid. A poultice favours the formation of pus, and causes a throbbing or pulsating pain, and a feeling of tenderness in the part, which are the natural attendants on the process of suppuration. It imbibes the pus it serves to create, and thereby becomes more irritating. A poultice, before it is many hours on, is a mixture of sour farinaceous substance, rancid oil, and pus, oppressing the part by its weight, and beginning to adhere round its edges to the skin, creating the sense of constriction.

"In order to judge of the effects of poultices, it is only necessary to visit a hospital, where they are much employed, before the surgeon comes round, when the sufferings of the patients will be sufficiently obvious; and to contrast this state of feeling with that which arises after the poultices are taken off, and the wounds and ulcers bathed for some time with tepid water; the soothing and comforting effect of which is better known by the patients than the surgeon, and, therefore, they prolong it as much as they can.

"Water-dressing has not only better, but very different effects from poultices; it either prevents or diminishes the secretion of pus: a wound may at first yield a little purulent fluid, but in a short time this will be furnished in so small a quantity, as hardly to stain the lint. The pus, even from an ulcer, rapidly diminishes under water-dressing. I remember a case of a very extensive ulcer of the leg, to which I applied it; the patient pulled off the dressing in the night, because, as he said, "it was stopping the discharge," he conceiving, like many surgeons, that no open surface could heal without suppurating. Granulations also, which are rendered exuberant by poultice, are either never formed, or exist in a very slight degree under water-dressing.

"Instead of the throbbing pain produced by a poultice being excited, all pain is removed by the use of this remedy. A man, in a fight with another, had the nail of his thumb bitten through near the root. The water-dressing was applied. A day or two after I met him with a poultice on his thumb. On inquiring why he removed the first dressing, he said there was no use in keeping it on any longer, as it took away all his anguish, he supposing a poultice the proper application for the cure. In a word, the tendency of water-dressing (if it be properly conducted) is to induce the cure of wounds and ulcers, not requiring excitement, by the approximating or modelling process already described.

"The employment of water as a remedy for wounds and inflammation is no doubt of very ancient date. Hippocrates is said to have discovered, by the inscriptions in the temple of Æsculapius, that the priests had used water mixed with secret ingredients, in order probably to give the remedy more importance in the eyes of the people."—*J. Shew, M.D.*

DRESSING WOUNDS.—"The *immersion* of a wounded or inflamed part either in warm or cold water, according to circumstances, has perhaps, more influence on the sensations than any other mode of applying the fluid. I have witnessed the greatest effect from it, when used either warm in place of fomentation to soothe pain, or cold to abate vascular action. It would be a most valuable remedy, if any means could be devised for its application, without the inconvenience of the inflamed part being placed in a downward position. A very striking case of the benefit of immersion was communicated to me by Dr. Cardiff, then a military surgeon stationed at Kilkenny. A soldier received a thrust of a bayonet, which passed through his thumb, and between the metacarpal bones of his hand. After the bleeding had ceased, the hand was laid in tepid water, which speedily removed the pain. The immersion was continued for twelve hours, after which the hand was taken out and dressed in the usual manner (I presume with adhesive plaster), after which the pain returned with great severity and throbbing, so that it became necessary to remove the dressing and return the hand to the water. The immersion again removed all pain, and was now continued for twenty hours, and when removed, the common water-dressing was employed, no more pain was felt, and the cure of this frightful wound was accomplished without swelling, heat, suppuration, or any of the results of inflammation, and the cicatrix that remained was soft. The man went to duty on the eighth day after receiving the wound.

"Baron Percy very truly says, 'that if it were possible, on the receipt of a gunshot or other serious wound of the elbow, knee, foot, etc., to keep the part for the first ten or fifteen hours plunged in water, we should have fewer amputations to perform, and we should save the lives of a greater number of wounded.'

"A lady fractured her tibia, close to the ankle-joint; great swelling, tension, and pain immediately followed. At her own suggestion, the limb was placed in a bucket of warm water, which had the effect of removing the pain, and almost all the tumefaction, before I visited her for the purpose of adjusting the fracture."—*J. Shew, M.D.*

CASE OF APOPLEXY, AND CONSEQUENT PARALYSIS.—A gentleman, sixty-three years of age, stout, and of florid complexion, who had been accustomed to rich food, and a full quantity of wine daily, in a nobleman's establishment, was seized with apoplexy and paralysis, affecting the whole of one side, about a month before he came to me. The mouth was slightly drawn, the memory impaired, one arm quite useless, and the ankle and foot nearly so, and total constipation of the bowels, with distressing sensation of fulness in the head. Now, here was about as hazardous a case as any that comes under the doctor's notice, and such a case in allopathic hands would be pronounced one in which, at most, a partial recovery could be expected. The patient, however, had always a horror of physic, bleeding, blistering, &c. The good living of a princely board had rather too many temptations for his palate, to tolerate doctoring, even when brought to such a state as he was. He was a man of considerable decision of character, and thought for himself; and the idea of being invigorated by blistering and physic was so contrary to his judgment, that he was, to my great surprise, induced to come to me, as such characters generally prefer trusting themselves to professionally educated practitioners. The result of our applications, however, was, that in a fortnight he could write his letters with the hand that had been useless, and in two months he was entirely restored. It is now five years since, and he is in excellent health, and able to walk over our hilly country with more vigour than he could ten years ago. The treatment was as follows:—

First day, on rising, he had a hot soaping and tepid wash; forenoon, gentle fomentation on back and front, for thirty minutes, then wiped over with towel partly wrung out of tepid water, at the same time standing on a hot pad; afternoon, a sitz bath, 85 degrees, for ten minutes, having the feet in 105 degrees mustard and water at the same time, and a cold wet cloth on the head; then steamed and packed the lame leg and arm, wearing a body bandage and spinal compress wetted three times a day; bedtime, re-wetted bandages, and slept in wet cotton socks, with lambs' wool over. Varied the treatment on rising, and in the forenoon, by the hot and tepid sheet and alternate vapour bath and wet pack, watching the patient, and omitting baths as occasion required. The feeling in the head was the guiding symptom, and if that was uncomfortable, he had the legs to the calves in hot mustard and water, stopping the other treatment; at first had no flesh meat, but farinaceous diet, and five or six tumblers of water per day. If such cases ever have setons applied at the top of the spine, to relieve the head, or for congestion of the brain, they never fully get over the injurious effects. An elderly lady came this year to my establishment, who had been thus treated, for what, in fact, was only the reflex action of the nerves in a disordered stomach, affecting the head, and she has had almost constant uneasiness there ever since, and will have as long as she lives. Not one single application of the allopathic practitioners goes to natural restoration of the weakened frame, all is depletion, or stimulants, or sedatives, all of which are totally opposed to nutrition, or to allow nature to act independently.

CASE OF LIVER DISEASE, JAUNDICE, AND LOWNESS OF SPIRITS.—The following letter I have just received from a late patient. He came to my Establishment in a most miserable state of body and mind, and quite hopeless of cure, and I had much doubt if he was not gone too far to recover. He should have stayed to work the crisis off at my Establishment; it would have been thrown off in half the time. The writer of the letter is about forty-six years of age, and had taken a great quantity of physic—hence the great discharge from crisis. The renewed vitality of the digestive organs making good blood, will throw out all impurities from the frame, and he will then have no more crisis :—

Case: "To Mr. SMEDLEY—Dear Sir, it is some time since I wrote to you, say ten weeks or so, but I have not forgot Matlock, and the benefit I derived there. I have had my memory freshly awakened on receiving a bundle of prospectuses from you by post last week. When I last wrote, I think I intimated my sufferings on the skin, and how I had been relieved, and my flesh had cleaned and freshened. Such was the case; but in course of a week a second eruption began to appear, and progressed more extensively than the first. My thighs have been a mass of sores, or in one sore, extending below the calf of the leg, accompanied with intolerable itching, and yielding an abominable fœtid fluid with a sulphurous smell. I have been compelled to wear cotton drawers underneath the woollen ones I got from you, as it was impossible to keep my hands still, whether alone or in company. This has continued alternating until now, and I have deferred writing, to feel and see a change. I think at present for a few days past, I am somewhat relieved. My stomach has much improved, and my liver performs its functions a great deal better. What I am pleased to communicate is, that my brain is relieved, my vision is clear and strong, and the hypochondriac fears are fled. The bodily stamina, instead of being ten stones, as when I was at Matlock, is near eleven. The power of resisting cold much greater, and yet a much greater tendency to perspire. Altogether, I am better than for years. I continue to live on brown bread and butter, with cocoa, potatoes, puddings, and apples; no tea, nor flesh, nor condiments, seasonings, &c., further than sugar and salt. I frequently work in my farm, but sparingly at present. With our best wishes to yourself and Mrs. Smedley, I remain, dear Sir, yours faithfully, J . . . W . . ."

CONSTIPATION OF THE BOWELS.—This often formidable ailment we have never failed to overcome by simple water treatment, and without the assistance of any aperient medicine whatever.

Diet of course is of the first importance to relief, and it is best to abstain entirely from animal food. If the case is of long standing, or obstinate, take four or five tumblers of water per day, a small quantity at once, one tumbler on rising. The wet body bandage should be worn night and day for some weeks, and if it does not feel warm, have a flannel wrapper over it; re-wet it three times a-day. On rising, have a cold dripping sheet or shallow; forenoon a wet pack every other day; on alternate forenoons have sitz 70 degrees ten minutes, and four cold; every evening at bedtime have hot sitz sixteen minutes, and a cold sheet or cold sponging after it. Avoid all stimulants, coffee, pepper, mustard, pastry, and flesh-meat. See Baths, Nos. 69 and 78.

AGUE.—The mild water treatment is eminently successful in curing and entirely eradicating this formidable complaint. The hot and cold dripping sheet on rising, the fomenting pack, and ordinary wet pack, varied by a vapour bath, with cold dripping sheet or sponge down after it, and the use of the wet body bandage day and night, with a dry flannel wrapper over it if it does not keep a good warmth. Hot soaping, and sponge over cold at bed-time, once or twice a week. The hot sitz fifteen minutes, followed by a sponging over in nearly cold water, the feet in hot mustard and water, every night at bedtime, and the body bandage, would in most cases be sufficient, with care in diet, and abstinence from all stimulants and flesh-meat. The fomenting pack one hour, or one hour and a quarter, will arrest an attack at once.

BRAIN FEVER.—We have had several severe cases under treatment, and have been successful with them. I can only give some general directions in these cases, as the attack comes on from such various causes, and requires treating accordingly; but the great point in all cases of course is, to lower the excitement in the brain by derivative baths, relieving the overcharged blood-vessels in the head, and the nervous excitement.

In the first place, cut off the hair from the head (females may leave the long hair in front), have head bath 70 degrees, five to ten minutes, two or three times per day, and sponge the forehead while in. Mustard plasters to the soles of the feet day and night, as long as the patient can bear them, the legs and feet wet packed (Bath List, No. 214); and when the feet are too tender, put on cotton socks wrung out of tepid water, and lambs' wool over; have hot bottle also to the feet. Mustard plaster over the right side, in the region of the liver, till red. Fomentation back and front (No. 64 on list), twenty minutes at a time. Night and day spongio spinal compress. Wet body bandage, wrung out of hot water, should be used, and if it does not keep warm, put a flannel wrapper over it, as it is of great importance to keep up a good warmth in the stomach and bowels. The arms should be bandaged with wet strips of calico, mackintosh, and flannel. Towel pack (No. 44), washing the body over with hot water and yellow soap morning and evening, and sponging over with tepid water, standing on hot pad.

Diet. Cooling drink, see receipt at end of the work; barley water. No flesh-meat, coffee, &c. If there is much exhaustion, a teaspoonful of brandy in sago creed in water. Soon as the patient's appetite returns, cold mutton chopped fine, with bread-crumbs; and taking water by sips, and as much as the patient desires.

FISTULA.—(*See cuts of rectum.*) Dr. Hooper says: "Fistula in Ano. A sinus by the side of the rectum. From the laxity of the cellular membrane in the vicinity of the rectum, abscesses which form here easily become diffused, and the matter burrows by the side of the gut, often to a very formidable extent, and hence the necessity of early attention and great care in the treatment of abcesses so situated. Those fistulæ in which the matter has made its escape by one or more openings through the skin only, are called *blind external fistulæ;* those in which the matter has been discharged through an opening into the rectum, without any aperture in the skin, are called *blind internal fistulæ;* and those which open both into the gut and also externally through the skin, are called *complete fistulæ.* The cure is by a surgical operation, which consists in laying the sinus freely open, and applying proper dressings to promote its incarnation." Fistulas come on from sedentary habits and constipation. The habitual use of the sitz bath prevents both fistulas and piles. We have had a case of blind external fistula, which was cured by general treatment, and the frequent use of sitz baths at 70 degrees, fifteen minutes at a time, and one minute cold. But complete fistulas, I believe, can only be cured by a surgical operation. Hydropathic treatment is highly beneficial before an operation, in preparing the body for it, and afterwards in strengthening the parts, and general health.

RHEUMATIC FEVER.—This spring (1858) I was in Derby, and was requested to see a man in bed with rheumatic fever, age 28. I found the man entirely prostrated, unable to rise out of bed, joints swollen, and in great pain. The attack had been brought on by cold, indigestion, and overwork.

His doctor had given him strong aperients, in hopes of expelling the disorder, but this caused diarrhœa and increased inflammatory action of the mucous membrane in the stomach and bowels, and so lowering the vitality of the whole frame, that the strong medicine given to cause perspiration was entirely ineffectual. In this helpless, miserable state, I had the man wrapped in blankets, and removed by train to my free hospital, Lea Mills, suffering acutely during the journey. Soon as he arrived he was put to bed, and had a little tea and bread and butter, and in half an hour a fomenting pack for one hour, followed by a hot soap over and tepid sponging. This comforting, stimulating, yet soothing process gave immediate relief from pain, and produced free perspiration, which the doctor's utmost efforts for the previous fortnight had failed to accomplish; a half chest spongio compress and a wet calico body bandage, with flannel wrapper over, were applied; then the legs and arms bandaged with wet calico strips and flannel, &c., as No. 214 on list, and mustard plasters to feet, as No. 153; the man slept, and in the morning was greatly relieved. He had then hot soap over, and tepid sponge over, and rewetted and replaced the bandages; forenoon, another fomenting pack, No. 47, for three-quarters of an hour, and tepid sponge over; afternoon, sponge over and replace bandages; eight o'clock, hot mustard leg bath and wipe over with sponge squeezed out of tepid, and replace bandages. Next day same, only omitting foment pack, as perspiration was freely at work night and day for several days. Treatment after, light and gradually colder, until he could stand and have hot and cold dripping sheets and sitz baths and spinal rubbing, 65 degrees, then cold, and cold shallows and douche. In three weeks the man was thoroughly well, and fourteen pounds heavier than when he came, and has since experienced no return of his pains; the swollen joints soon got to their natural state. This patient had no stimulants, and no medicine of any kind, and no flesh meat the first week.

The gross ignorance of the nature and constitution of the human frame, shown in first "opening" the man's bowels, is marvellous: medical men are, however, brought up with certain fixed rules for expelling disease, which rules were made into law long before the discoveries of the nature and function of the nutritive nervous system, and no facts showing the desperate mischief and even ruin to the constitution by following those rules will stop such practice. "*Clearing the bowels*," just as they would clear a sewer, without the slightest regard to the difference betwixt living tubes lined with mucous membrane, nerves, delicate absorbents, and minute blood-vessels, and clay pipes; this method is still the law. "*Making the bowels act*," whether nature requires evacuation or not,—something must be forced out; and so it is often, and indeed always, with purgatives, that the delicate mucous lining of the bowels is more or less forced out with the contents. The mischief purgative medicine causes will be very soon apparent, when it is seen that the mucous membrane lining of the bowels protects the thousands of absorbents which take up the nutriment out of the digested food passing through them. "*Clearing the bowels*" stops these absorbents in their legitimate office, and forces them to absorb the purgative medicine, instead of the proper aliment for the blood; the doctor's physic is carried into the whole circulation, and besides scouring the bowels, produces inflammatory action of the mucous membrane, and mischief the doctor cannot follow in other parts of the body. The difference betwixt comforting the body by our harmless applications drawing away the poison pent up by the dry skin, and that of lowering and punishing the delicate internal structure, was strikingly shown in this case. Yet the same doctor goes on with the same practice, and I have at this moment two free hospital patients from under the same doctor's hands getting well, and for which cases he could do nothing. I could give a good number of cases of rheumatic fever cured by our applications; in no case have we failed to cure, and in a short time; and, above all, the disorder is thoroughly expelled from the frame, and so saving the patient from heart affection, which is very commonly the consequence of rheumatic fever; and if the patient under allopathic treatment escapes this, he is always left with aches and pains more or less, and weakness in some part, which is never cured by medicine.

ANOTHER CASE OF RHEUMATIC FEVER.—A case of rheumatic fever was cured by the following treatment. On rising, a fomenting pack followed by a dripping sheet or shallow bath, at first not quite cold, say 65 degrees; forenoon, a vapour bath for ten minutes, and a dripping sheet after nearly cold; three o'clock a wet pack for one hour, followed by dripping sheet as above. The fever generally returns about night, and if this be the case, give another wet pack of half an hour from seven to eight o'clock. Wet a napkin in cold water, and wear it round the head night and day, frequently renewed in cold water. Shallow baths are better than dripping sheets, where they can be had, rubbing the body well while in the bath. Wear a wet body bandage night and day; diet as in former case, omitting flesh-meat if the fever be high. No stimulant of any kind nor medicine to be taken; not to sleep in flannel. We have never found this treatment fail in soon effecting a cure, repeated daily until the fever is subdued, and then fewer baths are needed.

I have had cases removed to my free hospital in a cart, in the middle of winter, on straw, with a blanket or two to cover them, and in three weeks have sent them home entirely restored to health. We consider such cases the most simple and speedily cured of any we have; allopathic doctors find them the most difficult of any of their cases, and never thoroughly cure them. I have recently had several severe cases of sciatica, and been very successful with them. If the patient is young, two or three months, and sometimes a shorter period, is sufficient for cure; but if in middle life or older, the complaint is not so soon removed, yet even in these cases we succeed. Nature must, however, have time to act, as there is never sciatica without derangement of the digestive organs, and often of long standing.

The following is the prescription I gave in one of these cases; the general health must be the main point to attend to, and the complaint secondary, and only to comfort and soothe, and gently stimulate the limb:—On rising first morning, Nos. 13 and 28; second morning, No. 2; third, No. 28. First forenoon, No. 55; second, No. 64; third, No. 46, fourth, No. 61. Afternoon, first day, No. 141; second, No. 143; third, No. 142; fourth, 143. Nos. 195, 165, 208, moderating the baths according to the age and strength of the patient. When crisis or rash comes out on the affected limb, then keep cold water off the part, Nos. 148, 146, 35. The more severe the crisis is, the more the body will be purified, and the irritating matter taken out. Sciatica is a formidable complaint, and incurable by medicine; thousands are cripples for life by it, and six or even twelve months are well spent in the cure, rather than go halting and suffering the remainder of existence; very often the inflammation of the sciatic nerve so affects the muscles and ligaments of the hip-joint, that dislocation takes place, and then restoration is impossible by any means. The intimate connexion of the sciatic nerve with the spinal marrow is the reason of the inflammation of this nerve being of so much more consequence than other nerves more distant from the nervous centres.

CASE OF SCIATICA.—A gentleman engaged in farming, and fond of field sports, had, from indigestion and often keeping his wet clothes on, an attack of sciatica, or inflammation of the sciatic nerve, which, as seen in the engraving, takes its rise in the hip and runs down the back of the leg to the heel. The attack was sudden and severe, causing intense pain, and almost incapacitating him from walking. The doctor was sent for; he applied the routine practice, which, as I have shown, is not a jot improved upon in principle since the case I name of the Earl of Derby, in A.D. 1594; and notwithstanding the wonderful discoveries of the nature and action of the human frame, it is still war to the knife with the poor body, and a war in which many times more than were destroyed in the Crimean war are killed, wounded, and missing every year. After giving calomel internally, and heating lotions externally, for a few weeks, the patient not getting better (as there was not the least probability would be the case with such barbarous, ignorant plans), both patient and doctor were brought to a stand to know what course to take next. The gentleman was only twenty-six years of age, and it was sad to see the prospect of being crippled for life, as the doctor well knew would be the case unless more life could be got into the limb, and so he said to the patient, "We must take some stronger measures, and try blistering," which the patient was very unwilling to submit to: however, his surgeon told him that it was his only resource. Now mark, the faculty proclaim that the life of the body consists in this vis vitæ, or power of life in the nervous system, or the nerves of nutrition, and, as Dr. Hooper says, whatever lowers this, lowers the vitality of every organ. But in this case, as in all their practice, they make no scruple in setting this doctrine at defiance. The surgeon laid a powerful blister on the leg, and soon as it rose all use was gone out of the limb, and the patient could not move it an inch! The first blister not "succeeding," the surgeon wished to try another, but the patient refused to submit, and well for him that he did, for in all probability had he tried another, the life would have been effectually expelled from the part. A few weeks after this he heard of my Establishment, wrote to me, and I advised him to come immediately. I told him he would have to wait while we got nutrition into the limb, before he could use it. For six weeks we were attending to improving his general health by our comforting baths, by withdrawing all stimulants, and allowing little or no flesh meat. He had been prescribed "good living" and bitter ale; we thought he had too much, or quite enough, inflammatory action in his blood, and accordingly prescribed good "living" in the form of our nourishing food, and water to drink, which gives real nutrition. At the end of six weeks his bodily health had greatly improved, and he had gained weight; but the pain in his leg was almost as severe as before, and he was unable at all times to leave the sofa. He said, "You have done your best, you have been very kind, but I must give it up as a hopeless case." I told him I yet had not the least doubt of his perfect recovery, and begged of him to have as much patience with our system as he had with the doctors, and especially when we had proved to him that his frame was recovering. I said, if you leave now and give up the treatment, you will be a cripple for life. He stayed a fortnight longer, when symptoms of crisis began in the limb, and then I knew relief was speedily at hand. He returned home, as his business required him; but he promised me he would employ one of his servants to give him the treatment I prescribed, and persevere in the same course as far as he could. He did so, and very shortly was entirely cured, and has ever since (now two years ago) been quite sound, and his general health established. He has escaped being a cripple, and, moreover, has got important knowledge for life. I am ready to give reference to this case, or to any case I name.

We have since adopted a sort of trowser-leg, made first of two thicknesses of the thick twilled bump cotton sheeting, then one of flannel, and then one of mackintosh, lined with calico to strengthen it. The two thicknesses of cotton are wrung out of cold or tepid water, and the trowser-leg is put on, tied round the waist, and flannel bandages put over the whole; the object of which is to get great warmth into the leg and hip. The legging is precisely the same as a pair of trowsers with a high waistband divided at the fork, so that the upper part keeps the hip warm. This is worn night and day, until a crisis follows; and still it is always kept on until that is nearly well; meantime steaming the leg, or fomentation packing to it once or twice a day; and having a wet pack every third day, or slight steamer every day to soothe the whole frame, or 90 degrees shallow lowered to 70, not cold.

One leading important principle it is indispensable to observe in all such cases, and that is, to have a constant application of moist warmth to the parts, and the greater this warmth the sooner will nature begin its work of restoring vitality. We find this effected in the safest and most natural way by using the bandages, as described No. 214 on list. And in addition to this, we find that leg baths to the calves in hot mustard and water, 95 degrees, for thirty minutes at a time, very beneficial; but as this cannot be done very frequently on account of tendering the skin, we use wet packs for a long period to the hips and legs, but not every time to the body, as that would lower the body too much; a pack every other day, or twice a week, is often sufficient, but the leg pack and baths Nos. 139, 140, 141, 142, 143, 145, 195½, may be used as often as the feelings prompt, without injury and always with advantage. Wet pack to the legs and hips is done in the following manner:—Spread mackintosh sheet, over which a blanket, and then a wet thick cotton sheet, from the hips downwards. Put the sheet over one leg, and round it, and then the other side of the sheet over and around the other leg, then the blanket and the mackintosh sheet, wrap all up close and tight, and let the patient lie in this for two or three hours, if the parts do not feel cold. They may not feel hot, but if they do not feel cold is sufficient; after this sponge the parts with 70 degrees water, and repack with the strips. This packing does not weaken, however often it is practised, and the oftener it is done the better until crisis comes out, and then it should be done whenever the parts are hot or irritable, until quite recovered. In cases where the shoulders are fast from rheumatism, constant moist warmth is indispensable, and even after recovery, for some time there should be an extra quantity of flannel or lambs' wool hosiery on the parts. Fomenting for half-an-hour or so, and then leaving the part without plenty of packing to keep up the vitality, is of no use; the stagnation in the circulation of the minute blood-vessels soon takes place again. The warmth must be kept up until crisis comes on, or recovery; but few such cases will escape crisis, which throws off the tissue, deteriorated by the inflammation.

CASE OF SCIATICA AND RHEUMATIC FEVER.—A labourer, about twenty-six years of age, of sound constitution, from exposure to hardships, and keeping on his wet clothes, was attacked with sciatica in the right hip. He applied to a surgeon, who not only gave him advice and medicine free, but gave him money for food; and doctors do such kindnesses more frequently than the public know of. The tongue showing a bad state of the stomach and liver, and the bowels being constipated, alterative medicines were given, and good diet prescribed. This plan, however, only aggravated the evil, as purging the bowels gave no nutrition. The man leaving off medicine, and the summer weather coming on, got better, but not well. He went to harvest work, got soaked with rain one day, slept in a barn at night, and next morning found himself too stiff to work at all, and with excruciating pains in his limbs, he was removed home to a town a few miles off. The doctor was now employed by the parish, and pronounced it rheumatic fever. Physic alone was the only remedy attempted, except a pint of porter per day, with flesh meat, which was, of course, adding fuel to the fire of inflammatory action, already so intensely burning through the poor fellow's muscles and joints. Morphia was given to ease him and give sleep. He was told to keep his bowels open by the medicine prescribed, if they did not move freely every day. Such treatment, being diametrically opposed to the fundamental principles of the life and health of the body, soon set the doctor fast to know what course next to adopt. He recommended him to the County Infirmary, and a nobleman gave him an in-patient's admission ticket. Here the man was put to bed, and kept there during three weeks. He was freely purged with medicine, sometimes the bowels operating two or three times a day for the first month. A hot water bath was ordered twice a week; the man had one, but was so prostrated with it that he told them he should die if he had another, as he could not now stand at all unsupported, so this was given up. After he came out of the hot bath, he was wrapped in blankets, and put to bed, and the perspiration was so profuse that the man said a can-full of water might have been emptied into the bed. Doctors have, it seems, yet to learn how Hippocrates, the great founder of their order, many hundred years since, stopped excessive perspiration, when enough had been produced, by washing the body in cold water. Had one of our tepid shallow baths, or tepid dripping sheets, been given after the hot bath, the man would have reaped great benefit, instead of the injury he received by such excessive sweating in so weakened a frame. Chronic inflammation commenced in the eyes, and so severe was it in one, that the doctor said he feared it would result in the loss of sight. This was entirely caused by the weakness of the frame. The object in allopathic treatment really appears to be to get all the life out by sweating and purgatives, under the idea of purifying the system, but the body dissolves under such cleansing. An M.D. and the house surgeon assiduously attended the man. The physician told the man that unless he got better soon, he must, according to the rules of the institution, discharge him as incurable. The man replied he could not help it, and must submit. One more plan was tried by way of rousing worn-out nature, and drawing inflammations out, and that was a large blister right across the bottom of his back; it rose well, discharged well, but, as in the Earl of Derby's case 200 years ago (see index), still, mysteriously to the doctor, it did no good, nor was it likely to do.

Now let it be remarked, that all this is the usual routine treatment for such cases, rich or poor; for the man had been under two eminent surgeons for months before he went to the Infirmary, and at the Infirmary he had attention and advice equal to any in the land, by surgeons and physicians too, and the best diet, warm rooms, and hourly attention; in fact, such that is not to be had at the ordinary homes even of those who can afford to pay physicians. The case was a failure, given up as hopeless. Not one plan had been tried in accordance with nature's laws of nutrition; all had been forcing her to act; attempting by compulsion to eject the inflammatory action, without regarding nature's complaint of the gross usage administered to the wonderfully delicate complicated structure of the body.

The man was advised by one of the surgeons to get to my free hospital. He applied; I happened to have a vacancy, and he was at once removed from the Infirmary bed to my hospital, with difficulty and much suffering; a perfect skeleton, and in intense pain. We began by appealing to the stomach and bowels with hot fomentation; then washed the body over with hot soap and water; then gave a tepid wash, drying with a sheet, and put on a wet body bandage and spinal compress; then packed the limbs in strips of wet calico, with dry over, then covering up with mackintosh and flannel. In twenty-four hours the man felt considerable relief; his natural feelings told him he had get on a new and more comfortable track. Soon he slept well, without narcotics, which had been given freely before; and thus, after three weeks' treatment, he was free from pain; the severe inflammation in the eyes soon getting well, as the tone of the stomach improved; and at the end of that time he walked to and from the hospital, up and down a high flight of steps, alone, to join our morning service; his appetite became good, and the bowels acting naturally, and only requiring time to become a strong man again. He gained weight and strength every day. He had not a grain of physic, nor a drop of mixture, except what our cook made in the shape of porridge, pudding, &c., and only water and milk, and weak black tea to drink. I could point to scores of such cases, now well, and some of them the servants of wealthy people, who, nevertheless, decline to countenance hydropathic practice. The very great gratification, however, in being instrumental in the restoration of our fellow-creatures to health, and imparting spiritual consolation at the same time, fully repays us for any worldly sacrifices: the possession of millions of money could not be put in comparison with it.

Directions for chronic rheumatism, or where the joints are set fast, and yet there is no pain or inflammation.—Keep spongio piline on the parts affected, damped with tepid water; or if this cannot be procured, wrap the joints up in new flannel, and three or four times a day remove this, and have the parts rubbed with cold water and the hand for three minutes at a time; and where the skin can bear it, put a little mustard in the water, and rub with that. If the patient be strong enough, let the limbs be put under a tap or spout for one minute, and then have them well dry rubbed with the hand till warm; or give a little dry mustard and hand rubbing. For general treatment, see cases in this book.

Directions for rheumatic cases, where there is inflammation and pain in the joints.—Steam them over boiling water for twenty minutes three times a day, and sponge with tepid or cold water afterwards; and keep them packed with calico strips (see list, No. 214). When you cannot get steam, foment, as in list 144; also fomentation pack, No. 46, to the whole body twice a week would be highly serviceable; also spinal slapping occasionally, or hot mustard baths to the limbs for ten minutes, with a tepid wash after, regularly morning and night. Have the whole body sponged over with tepid water, and regularly wear the body bandage, with flannel over it, if cold.

LUMBAGO (from *Lumbus*, the loin). A rheumatic affection of the muscles about the loins. The Hydropathic treatment is exactly the same in principle as for rheumatism in other parts. A patient, age about 55, rather stout, general good health, but with a dyspeptic tongue, from want of the daily application of water to the skin and whole body, and not using the wet body bandage for constipation, but taking a little physic instead, from extra over-exertion, and the stomach of course participating in the derangement of the system, was suddenly seized with severe lumbago pains; he wrote to me for advice, and, after a little relief at home, came to my establishment. I treated the case first for derangement of the digestive organs, endeavouring to soothe the pains in the back by our fomenting pads and hot can, which soon gave some relief; but until the stomach can be put right, the pains will not be got rid of, as it is simply mucous inflammation, which nature, true to the self-preserving principles of the frame, endeavours to throw off from the vital organs on to those parts which do not interfere with existence. Treatment first in the morning:—Nos. 46 and 26; put on a large piece of spongio piline, sprinkled with hot water, over the loins, where the pain is, and over that No. 163 or, if no spongio at hand, No. 168; remain in bed till the pains are relieved. At 11 o'clock, have large mustard plaster over the loins, as long as it can be borne; wipe it off with dry cloths, and then have No. 141; and at 4 in the afternoon, have No. 144, keeping on the leg bandages, with plenty of flannel over, all night, mustard plasters to the feet, one and a half inches broad, and bound on with dry calico bandage and flannel. No flesh meat, nor any stimulants or coffee, but little food, and that of a simple kind. The following morning, if pain is yet severe, repeat the previous day's proceedings, and remain in bed; but if it is abated, begin at 7 o'clock with No. 26, and keep on only the spongio and body bandages, rubbing the loins every time previous to putting on the spongio with hand and tepid water one or two minutes; at 11 o'clock, No. 144, and do not disturb the body more until 9 o'clock at night, unless the pain is severe, when, if that is the case, put on dry hot fomenting pad over loins, and one in front, and dry hot fomenting can for one hour or longer; afterwards rub the part with hand and tepid mustard and water, then sprinkle the spongio with hot water; replace it and the body bandage wrung out of tepid water.

When the pain is relieved, rise and sit in easy-chair; but the less the back is used, the sooner the inflammatory attack will subside. After the first two days, and if the attack is subsiding, have No. 6; keeping on spongio and body bandage for a week or more; and when leaving it off, have dry flannel or, what is better, No. 168. The part will be very susceptible to cold for a considerable time. If any return of the complaint, use No. 64, and the bandages and spongio No. 163, wrung out of hot water, and a flannel wrapper over it, night and day, will soonest get the stomach and bowels in order after the first severity of pain is over. After the attack has subsided a week, get to No. 2 twice a day, No. 51 once a week, No. 39 once a week; then go on ordinary home treatment. No. 163 should be worn for several weeks, or until crisis is out and partly over. The complaint must be treated as a stomach disorder, and live accordingly; after meals, No. 76 or 77 is useful; No. 59 is useful, instead of fomentation, after the first day or two, and may be repeated several times in the week, if the person is at all stout.

ALLOPATHIC TREATMENT OF RHEUMATISM.—It may not be uninteresting or uninstructive to give some extracts from the standard authorities of the day as to the opinion of the medical profession, both of their idea of the nature and causes of rheumatism and their mode of attempting cure. The same distinguishing line of action, it will be seen, is adopted as in all their attempts to restore failing or fallen nature;—strong purgatives, calomel, &c., bleeding, blistering, burning with moxa (*see article on this in index*), seton, issues, opium, &c., "*cupping, blistering, and active purgatives long and steadily continued*" (*Hooper*); and when the continued effects of such means shows the natural result on the sinking frame, then "*stimulants and tonic medicines*" are tried for a time, to be succeeded by the previous plans. In all cases of chronic rheumatism, says the article, stiffness of the joints is to be dreaded; and so recommends exercise. *This has made permanent cripples of thousands; for all experience proves, that the more a rheumatic joint is used, the stiffer it becomes, and the more painful*; nevertheless such advice is still given, and being by the profession followed, until regret comes too late. Hooper in another place says, that "*Rheumatism is aggravated by motion*"! "*In all cases pain is, if possible, to be relieved, and generally opium will be found the only effectual remedy.*" Now opium can stupify, but not give renewed vitality; and it does infinite mischief elsewhere, according to their own showing. We remove pain by our fomentings, bandages, &c., bring out the inflammation on to the surface, not by burning with moxa, &c., but simply by causing more vitality in the part; and this will always throw off morbid or inflammatory matter, at the same time relieving the stomach, not poisoning it with "*full and free doses of calomel,*" followed by black draught, scouring the poor bowels and the liver. Where are Sir Charles Bell's and Dr. Hall's discoveries recognised in all this? Where is the vis vitæ or power of life regarded? The body might be some automaton machine, that required polishing, cleaning, and patching; and not muscle, mucous membrane, glands, and the curious variety of tissues, &c., all acting and existing by the undefinable yet undeniably existing nervous fluid or electricity, which the same practitioners show us holds all the gas, and water, and silica, and salts composing the body in its form and gives it life.

Hooper's Medical Dictionary, a modern standard work, states:—

"RHEUMATISM (from the Greek, I am afflicted with defluxions) is an affection of the extremities and external coverings of the human body, occupying the muscular, tendinous, and fibrous textures, and characterised by pain, stiffness, and swelling of a joint, with or without fever, according to the violence of the disorder. In common life, a threefold distinction is made, viz., into the true rheumatism, the rheumatic gout, and the rheumatic fever. The two latter alone merit the title of *inflammations*, but there is obviously a close analogy in the pathology of all these affections. In their symptoms and mode of treatment, however, sufficient difference exists to entitle them to separate examination. It is certainly a curious circumstance, considering the frequency of this complaint, that there should still be so much obscurity in regard to several of the fundamental doctrines connected with rheumatic inflammation. This may be partly explained, perhaps, from its being a disease of so little danger, as never to have received any elucidation from the labours of the morbid anatomist.

"*Acute rheumatism.*—We shall begin by the consideration of that highest grade of rheumatism, called the rheumatic fever, the acute rheumatism of nosologists, a painful and severe disease, thus characterised. It is ushered in by a sudden attack of rigors, followed by the usual symptoms of pyrexia, and is particularly distinguished by the great pain and swelling which affect one or more joints, coupled with an utter inability to move them, and very commonly with considerable redness. The affected joints are acutely tender to the touch. The pains are aggravated towards night, and for the most part, at all times, by external heat. The swelling, except in certain cases hereafter to be specified, does not take the form of the joint, but is diffused over the cellular membrane in its neighbourhood. Several joints are commonly affected at the same time; but one of the most singular phenomena of rheumatic inflammation is the strong tendency which it exhibits to *shift its situation;* to abate in one or two joints, often very suddenly, and to become as suddenly violent in another and a distant part.

"The accompanying fever presents several important peculiarities. The pulse seldom exceeds 100 or 110 in the minute; but instead of the hardness which characterises inflammatory fever, it is full, soft, and as it were *round.* The skin, instead of being hot, harsh, and dry, is commonly in a state of profuse perspiration; and a remarkable acid odour of its secretions may be noticed. The tongue is always deeply loaded. The papillæ appear elongated, and covered with a thick and abundant mucus. The functions of the brain are in a peculiar manner exempt. Headache is seldom present in any form of rheumatic inflammation, acute or chronic; and delirium is almost unknown. There is great thirst, but rarely any nausea or vomiting. The bowels are costive, though easily made to move. There is a sallowness in the aspect, and a peculiar expression of the countenance, sufficiently distinct from that of common febrile anxiety.

"*Terminations.*—Different as are the local and constitutional symptoms from those of other phlegmasiæ, the terminations of rheumatic inflammation are no less peculiar. The local inflammation may run high, but it never proceeds to suppuration. It is seldom, indeed, that any permanent injury is done to the joints; for if effusions of a transparent gelatinous fluid into or around the sheaths of tendons and the capsular ligaments take place, they are commonly absorbed in a short time. The most important consideration, in this view of the subject, is the disposition which exists, in a state of acute rheumatism, to an affection of some internal organ by *metastasis* (*translation to the heart, &c.*), or rather by extension of inflammation; for it is not often that the joints are relieved when this event takes place. *The organ chiefly liable to be so affected is the heart, and its investing membrane, the pericardium, and it is from this occurrence alone that any danger in the progress of the disease is to be apprehended.* The symptoms that result are those already described when treating of pericarditis. It was then remarked, that the circumstances which occasion this extension of rheumatic inflammation to an internal organ have never yet been satisfactorily determined."

Lowering the vitality of the nervous system by drugs, blisters, &c., often determines the inflammatory action to the great muscles of the heart. I have had many patients who have been thus affected, after allopathic treatment of rheumatic fever. This is never the case with our mode of treatment.

"*Recurrence of rheumatic fever.*—No disease is more liable to relapse on slight occasions than acute rheumatism. Going out a little too early in the open air, too much exercise of a particular joint, or an excess in diet, have frequently brought it back in all its former violence. Acute rheumatism is characterised also by a tendency to recurrence after a long interval. Those who have once suffered from an attack of the disease should therefore be particularly careful to avoid what we shall point out as its exciting causes, or to obviate them by proper attention to clothing. Rheumatism is certainly the most tedious of all the acute inflammations. In many cases it appears to run a defined course, which does *not admit of being shortened by any process of treatment, and in a certain length of time to wear itself out.* This is seldom less than a month, or longer than six weeks. *That the acute sometimes terminates in a state of chronic rheumatism, cannot be doubted;* but, instead of being a frequent occurrence, as is often imagined, this is in fact rare; and though the recovery from genuine acute rheumatism is tedious, it is usually perfect."

As to "*running a defined course, which does not admit of being shortened by any process of treatment,*" this is the case probably with drugs, but not with Hydropathy. A friend of mine, a surgeon, two years ago had rheumatic fever. He told me he never felt for such cases before, but could then. He lay for months unable to attend to his practice, and a year after had still some aches and pains. I told him he had not got the disease entirely eradicated. Such a case we should have cured in two or three weeks, and thoroughly, as we have often proved. Then follows the Allopathic remedies,—

"*Treatment.*—If an opinion were formed from the various and even opposite modes of treatment which have been recommended in the common acute rheumatism, not upon theoretical grounds, but after ample and successful experience, it might rationally be supposed that the disease occurs in the most opposite states of the system; but this opinion is at variance with common observation. I believe the better conclusion to be, that acute rheumatism is at all times a tedious and rarely a dangerous disease; that a large proportion of cases would recover with very slight care; and that, in many, medical treatment is of little further service than as obviating the tendency to internal inflammation. It cannot, I think, be doubted, with regard to the power of *cutting short* the disease, that a considerable difference exists between rheumatism and common inflammation."

Attempting to obviate the tendency to inflammation by calomel, bleeding, and blistering, is the sure way to produce it, by lowering the vis vitæ; and as to rheumatism not being a dangerous disease, it makes wretched, suffering cripples of thousands; and in many cases, from its natural tendency to attack the muscular structure of any part, it often attacks the muscles of the lungs, and especially the heart, and is a frequent cause of death from heart disease.

"Three plans of treatment have been advised in the acute rheumatism. 1. *The usual anti-phlogistic system, consisting of blood-letting, purgatives, saline and antimonial medicines.* 2. *Calomel and opium.* 3. *Bark.*

"1. The authority of Sydenham is in favour of the first: and though it is impossible to call in question the very remarkable efficacy of opium, and of calomel in combination with opium, in many cases of this disease, yet the plan of treatment which that judicious physician employed will be found, upon the whole, the most generally efficacious. The important distinction to be kept in view between the practice in acute rheumatism and that in other inflammatory affections is, that while, in the latter, a continuance of the same symptoms calls for a repetition of the same evacuation, it does not do so in the former. To subdue rheumatic inflammation by the lancet alone (even if possible) would be to weaken the system unnecessarily; for it is to be remembered, that, in this disease, the inflammation is not in an organ essential to life. Sixteen ounces of blood may at first be taken from the arm, and repeated two days afterwards, if the pain continues urgent, and the pulse active, with much feeling of general oppression. The blood will always be found highly cupped, and buffy. *The further treatment of the disease may commonly be entrusted to purgatives, calomel, and opium, antimony, colchicum, and the common saline diuretics; but venesection must be again had recourse to, at any period, if symptoms of cardiac or other internal inflammation supervene.*"

Here is an array of "*remedies*" that is enough to frighten the rheumatism out by the mere mention of them, when the cause is stated by the same author to be indigestion, cold, &c. Farther, he says,

"2. The power of opium, and of calomel in combination with opium, in relieving pain, and repressing acute rheumatic inflammation, is very remarkable; and in almost all cases this medicine may be employed with advantage. Calomel in acute rheumatism is best given in full doses. It is seldom that mercury affects the salivary glands while the system is labouring under rheumatic fever.

"3. Bark was introduced as a remedy in acute rheumatism, with the highest encomiums, by Dr. George Fordyce and Dr. Haygarth; but as far as my observation extends, it has not answered the expectations which might have been formed of it from the testimony of these authors. It has appeared to me to be of use only in the latter periods of the disease, when considerable pain and stiffness of the joints are frequently found to exist, but with a *natural* state of the pulse and tongue.

"*Regimen.*—In the true acute rheumatism, local applications to the affected joints are of little service; or rather, in most cases of no service at all. This remark applies equally to fomentations, cold lotions, rubefacient liniments, and blisters. Not so, however, is it with regard to diet. In acute rheumatism, the functions of the stomach are often little impaired; but a free indulgence of the appetite protracts the complaint, frustrates the effects of other remedies, and has certainly contributed to give to rheumatism that character of tediousness which makes it the opprobrium of physic. Broths and jellies, animal food in every shape, as well as wine and porter, are to be prohibited; and a cool, spare, vegetable diet strictly enforced."

We find local applications to the affected joints to have great effect in drawing out inflammation; but then our packing and the doctor's heating lotion, blistering, &c., is of a totally opposite principle: ours soothe and invigorate; theirs irritate and weaken, and, as the article states, "*makes rheumatism the opprobrium of physic.*"

"*Chronic rheumatism.*—In the great majority of cases, primary rheumatism is of the chronic kind. Indeed, the very rarity of acute rheumatism is sufficient to point out that the chronic is not often the sequel of the acute form of the disease. Chronic rheumatism is characterised by pain of the joints *aggravated by motion*, *stiffness of the joints*, thickening of the several structures in their vicinity, or increased effusion into the synovial bags. It is readily distinguished from the acute rheumatism by the absence of inflammatory fever, and of redness in the affected part. To this kind of affection the term *rheumatism* is, in common language, specially appropriated.

"*Prognosis.*—The obstinacy of chronic rheumatism is proverbial; but being a disease that affects only the exterior of the frame, it may continue for years, without material injury to the general health. Under good management, many cases may be cured; and life, under all circumstances, rendered at least more comfortable.

"*Treatment.*—No general rules of much importance can be laid down for the guidance of the student in the treatment of chronic rheumatism. Attention must always be paid to the state of the constitution; and the remedies, both internal and external, varied according to the greater or less degree of feverish excitement present. The number of cures for the rheumatism, both popular and scientific, is so great, that it is difficult for a student to believe that any case can occur for which some appropriate remedy may not be found. Instead, however, of a bare enumeration of the several plans that have been tried, and occasionally found useful in chronic rheumatism, it may be advisable to attempt, at least, to point out a few *principles* that may prove of general application.

"1. In some of the forms of subacute rheumatism, particularly lumbago and sciatica, *the local abstraction of blood* by cupping will be productive of great benefit. Where the pains are very severe, it may be even necessary to take blood from the arm, which in this state of disease will always be found cupped and buffy. Leeches are well adapted to those cases of *arthritic* rheumatism, where there is pain and swelling of a joint from distention of the synovial membrane. Dr. Haygarth recommends their application where an enlargement of the extremities of the bones has taken place.

"2. The cure of chronic rheumatism may occasionally be effected by promoting *diaphoresis* (perspiration). This mode of treatment is adapted to those cases where there exists some degree of febrile excitement, where the pains are of recent date, and shift from one joint to another. The warm bath may be directed twice in the week (provided the pulse be perfectly free from all activity), and the following diaphoretic draught given repeatedly during the day:—

"℞ Misturæ camphoræ, ʒ vj.
Liquoris ammoniæ acetatis, ʒ iij.
Pulveris ipecac. compos. gr. vj.
Pulveris acaciæ, gr. iv.
Syrupi, ʒ j. Misce.
Fiat haustus sextis horis sumendus.

"It is unnecessary to add, that neither in this, nor in any other form of chronic rheumatism, can anything be hoped for without proper attention to clothing, and above all, the use of flannel as an under-dress. In the same description of cases which are benefited by diaphoretics, the vinum colchici may be given with great advantage. Where there is any considerable degree of effusion, either within the capsular ligaments or the bursæ, or where the cellular membrane in the neighbourhood of the joint is œdematous, a draught of the following kind will be found useful:—

"℞ Aquæ menthæ piperitæ, ʒ vij.
Liquoris ammoniæ acetatis, ʒij.
Vini colchici, ♏ xv.
Syrupi tolutani, ʒ j. Misce.
Fiat haustus ter in die sumendus.

"Where the colchicum irritates the bowels, it should be omitted, and a common saline effervescing draught substituted.

"3. Great benefit is experienced in all forms of chronic rheumatism by strict attention to the bowels. In some cases the daily use of an enema will be found to supersede the necessity of aperient medicine. Where this is sufficient, a mild aperient draught should be directed twice or even three times during the week:—

"℞ Infusi rhei, ʒ x.
Magnesiæ sulphatis, ʒ ij.
Tincturæ sennæ,
——— cardam. compos. *sing.* ʒ j.
Sacchari albi, ℈ j. Misce.
Fiat haustus, pro re natâ sumendus.

"A more active purgative, containing calomel and antimony, may be given, should the symptoms of feverish excitement (from cold, or any other accidental cause) be unexpectedly renewed.

"4. *Where great torpor and debility of the general system prevail, stimulant and tonic medicines of different kinds have been administered with great advantage*, the principal of which are gum guaiacum and the volatile alkali (or their combination, the volatile tincture of guaiacum), the oil of turpentine, the balsam of Peru, and mezereon. Bark, both in the form of decoction and powder, unquestionably possesses considerable power over certain forms of chronic rheumatism attended with general torpor; and arsenic has proved successful, even when the *structures* about the joints had become partially disorganised. The good effects of all these remedies will be considerably aided by the diligent use of stimulating embrocations (such as the compound camphor or soap liniment), friction alone appearing to be a powerful means of exciting the languid action of the vessels. The following formula is strongly recommended by Dr. Bardsley:—

"℞ Linimenti saponis compositi, ℥ ij.
Liquoris ammoniæ,
Tincturæ cantharidis,
——— opii, *sing.* ʒ ij. Misce.
Fiat linimentum.

"In all cases of chronic rheumatism of long standing, permanent stiffness of the joint is chiefly to be dreaded, to which nothing contributes so much as neglect of the due exercise of the joint. Exercise, therefore, should always be strongly recommended to a rheumatic patient. In a few cases, where torpor and stiffness predominate, the introduction of needles into the skin and subjacent cellular membrane, has proved serviceable. This practice is called acupuncturation.

"5. Mercury, pushed so as to affect the mouth, is very effectual in the cure of rheumatic affections of a chronic nature. It appears to operate as a general *stimulant*. The best mode of administration is five grains of Plummer's pill (pilula submur. hydrarg. compos.), taken every night at bedtime. In many of these cases it has been supposed that a syphilitic taint may have existed in the constitution, and kept up the disease; but very frequently there is no foundation for such a suspicion. Where rheumatic pains can be traced to cold while the system was under the influence of mercury, decoctions of sarsaparilla, guaiacum, and elm bark, or the powder of sarsaparilla, carefully prepared, in doses of two drachms three times a day, may be given with a reasonable prospect of advantage. The sarsaparilla should be continued, in full doses, for five or six weeks.

"6. No one remedy, perhaps, is of such general application in the treatment of chronic rheumatism as warm bathing, general and topical. In that severe form of the disease, which has been called nodosity of the joints, scarcely anything else can be relied on to soothe the pain, and relax the rigid fibres. The efficacy of the waters of Bath and Buxton, even in very obstinate cases, is generally acknowledge. They are applicable, however, only in that species of rheumatism which is unattended by inflammatory excitement. The vapour bath is a remedy of very decided efficacy, when there is effusion into the joints of long standing, which the usual antiphlogistic measures have failed to reduce.

"7. In all cases of chronic rheumatism, *pain* is, if possible, to be relieved; and, generally, opium will be found the only effectual resource. The best forms of administering opium in this disease are Dover's powder (pulv. ipecac. compos.), in the dose of ten grains every night at bedtime; or the liquor opii sedativus in combination with antimonial wine, and in doses sufficient to lull pain and procure sleep. The headache and costiveness which opium occasions, and which constitute the great bar to its employment, must be obviated, as far as possible, by the use of enemata or the aperient formerly recommended. Where opium in every form disagrees with the system, the extracts of conium, or hyoscyamus, may be substituted; but the relief they afford is very trifling.

"There are three forms of chronic rheumatism which have acquired specific denominations. They are sciatica, lumbago, and pleurodyne. A few observations upon the peculiarities which have entitled them to such a destination may not be out of place.

"*Sciatica.*—This is rheumatism of the cellular envelope of the great sciatic nerve. It is charcterised by an excruciating pain, extending from the loins down the back part of the thigh, particularly urgent during the night, and totally preventing sleep. When occurring in its utmost intensity, sciatica is accompanied with high irritative fever, a hard pulse, and deeply loaded tongue. It occurs in all habits, but chiefly in the robust. It can be traced in almost all cases to the combined influence of cold and moisture. *Cupping, blistering, and active purgatives, long and steadily continued, are required for its cure. A pill, containing three grains of calomel and one of opium, should also be given every night at bedtime, until the system has been brought under the influence of mercury. In obstinate cases an issue should be directed.* The application of the *moxa* has occasionally given relief" (*see the effects of being brought "under the influence of mercury," article Salivation, in Index*), "and, as a last resource, is certainly worthy of a trial.

"*Lumbago and pleurodyne.*—Lumbago is the rheumatism of the lumbar vertebræ, or rather of the large masses of muscular substance attached to them, and serving for the support of the body. It is distinguished from nephritis by the aggravation of pain on stooping. It is a less violent form of ailment than the preceding, and yields, for the most part, to strong stimulating embrocations, a blister, active aperients, and Dover's powder, in full doses, taken at bedtime."

Let the reader candidly compare the simple natural remedies of Hydropathic treatment with the above complicated unnatural treatment by physic, bleeding, &c., and judge which is most rational and in accordance with the organism of the frame.

GOUT.—This painful disease is very successfully treated by our mild hydropathic plans. I give a long extract from Dr. Hooper's Medical Dictionary, to show the nature of the complaint, and also to show the contradictory practice of modern medical practitioners. The description of the terrible effects of the medicine administered to lower the vitality of the frame, stated at the end of the article, is very striking; and after all, the writer says, it is a matter for discussion if such treatment does not lay the foundation of disease elsewhere. Hooper begins by saying, "the disease is usually preceded by flatulency and indigestion, and accompanied by fever, pains in the joints, &c.," indolence, inactivity, and too free use of wine and animal food; and sometimes it is hereditary. In these observations he is unmistakeably correct; but when he lays down the allopathic remedies, he pens a mass of contradictions: for it will be seen how he cautions against bringing the frame too low, lest the inflammatory action should settle on the heart or some other vital part. He also says, when the fit comes on, "*a degree of torpor and langour is felt over the whole body, great lassitude and fatigue are experienced after the least exercise.*" In the same paragraph he prescribes what most effectually lowers still more the vis vitæ or power of life, in the shape of purgatives, bleeding, laudanum, &c.; he speaks of "*cooling the body*" with "*gentle aperients or injections.*" Such an observation is worthy the Arab doctors he quotes. These "*cooling aperients*" lower the nervous power of the bowels, and by that means the contents are expelled; but as to "*cooling,*" aperients have exactly a contrary effect, for by lowering the nervous power a low and sometimes an acute inflammatory action will be set up. Inflammation is always the consequence of a lowered vitality of the organic nerves, or nerves of nutrition. By a fanciful description of some curious ideal peculiarities of the disease, he goes on to condemn lowering treatment, and prescribes brandy usquebaugh* and generous diet,—the very things which have caused the flatulency, the indigestion, and the fever! Hooper and all his authorities show, in one way or other, in this disease, that mucous inflammatory action exists in the stomach, liver, and bowels, from the lowered power of the organic nervous system, being unable to cause the necessary chemical change in the digested food. The causes he states in a plain, correct manner, and they are simple enough; but as to the remedies he proposes, they are so complicated and so contradictory, that he cannot come to any definite conclusion, either as to the treatment or diagnosis of the disease. In individuals a dose that may kill, or all but kill, one, he says, may be used safely with another; but then, he says, "If the dose be in a small degree in excess, the symptoms are syncope (see article, 'Syncope,' farther on), cold sweat, extreme prostration of strength, violent vomiting and purging, a wiry and almost imperceptible pulse, or '*a state of utter and very alarming insensibility*; and in some constitutions these effects have followed *from the use of even a common dose*.' Now, I would ask, under these circumstances, how is it possible to find out the right quantity? for he says, terrible effects, destructive to life, may be followed by a common dose. The terrible effects of any dose of such dangerous stuff on the vitality of the nervous system must be evident to all. All here again is war against the body, with its marvellous delicate structure; nothing comforting to the frame, except brandy and usquebaugh (*Irish for mad-water*), and any indulgence in them must be paid for in more inflammatory action. Dr. Cullen thinks warm bathing, burning with moxa, &c., induce the inflammation to shift from one part to another, and repel the inflammation to some more important, and, consequently, more dangerous, parts; while opium, though it affords relief in present paroxysms, occasions them to return with greater violence; and therefore observes, by way of conclusion, "The common practice of committing the person to patience and flannel alone is established upon the best foundation"!!—a pretty conclusion to come to after all the directions Hooper gives for his bleeding, physicking, burning, poisoning applications, and the brandy, the Irish mad-water, &c. &c.! Patience and flannel are, however, far more in accordance with the nature, mode of cure, and the office of the organic or nutritive nervous system discovered by Sir Charles Bell and Dr. Marshall Hall, the last thirty years.

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* Usquebaugh. (The Irish for *mad water.*) Originally the pure spirit called *whisky*, which term is corrupted from usquebaugh. The usquebaugh of the present day is a strong rich compound spirit, chiefly taken as a dram, and made of cinnamon, coriander, nutmeg, mace, aniseed, citron, thyme, balm, savory, mint, rosemary, Spanish liquorice, sugar-candy, raisins, currants, and dates, infused in brandy.

We look at the causes of the disease, and quite agree with Hooper and his brethren, that indigestion and a vitiated state of the blood and tissue, and the lymphatic system, &c., are the causes of the complaint. Next, how to withdraw these vitiated humours, and subdue inflammation. First, we have the skin, with its millions of sudorific and sebaceous glands,—a very powerful apparatus to draw impure and vitiated matter out of the body. Hooper says, in this disease, the body is costive, and the urine pallid; but to remedy this state, he never thinks of the powerful means in the skin to set these offices at liberty. We can apply our wet sheets, and our fomentations, and our bandages, without running the least risk of bringing on "*syncope, purging, and vomiting*," or the "*alarming state of insensibility*" Hooper describes. We modify the temperature of our appliances so as to give some tone to the system, but not to shock the nerves,—they are already in too suffering a state to have further torture; then by keeping the air from the gouty part, and applying moist warmth, we soothe, and by our body bandages we stimulate the liver and bowels by comforting them, not by administering poisonous physic. We subdue the mucous inflammation in the stomach by our lazy pack, No. 50, or by No. 76 or No. 77; we take care no matter goes into the stomach, to add inflammation to what already exists,—no "mad-water;" we equalize the circulation by our hot and cold dripping sheets and our sitz baths, and the effect of drawing out morbid humours through the skin and absorbents is soon seen in the improved appetite for food and renewed vitality of the whole frame.

Hooper says, "*But our sheet anchor is opium, and it should be given freely and in union with some preparation of antimony, so as to act towards the surface generally, and thus restore to the living power its interrupted equilibrium.*" Restoring living power, or nervous vitality, by a free use of opium and antimony!! I need make no comment on such a desperate absurdity. The public heard a good deal of the *lowering power* of opium and antimony in Palmer's trial, the poisoner of Rugeley; but never since physic was invented, of such purgatives and narcotics *restoring* living power.

Case:—A gentleman, age 55, rather stout, came with gout in the right foot; had lived regularly and moderately, but of sedentary habits, spending all the day, but about an hour, indoors, with his mental faculties exercised on the same subjects day by day and year by year; had periodical attacks for many years, but, from being moderate in eating and drinking, not of the most acute kind; troubled with piles, the almost invariable consequence of a deranged liver. The following treatment ordered, on arrival, to be made more tonic as the disease subsided.

On rising first day, hot and cold sheet, covering gouty foot, both from the cold water and the cold air before commencing; after rubbing dry, put on flannel and body bandage night and day, the flannel part well wrung out of tepid water; dress, and then attend to gouty foot; first rub the foot between the hands with hot mustard and water for two minutes, then dry with cloth and hand, rub gently, and rub the instep and leg with both hands, rubbing upwards, and not downwards, for three minutes; then wring a merino or lambs' wool sock out of tepid water put it on the foot and over it strip of mackintosh, and over the mackintosh a lambs' wool sock and dry flannel, bandage the leg to the knee, then sitz No. 103. Second morning, a 6 or 8 minutes' steamer and cold sheet, instead of hot and cold sheet, and then the other treatment as before. First forenoon, about 11 o'clock, Nos. 62 and 103, foot not to be unpacked in any forenoon treatment; second forenoon, Nos. 103 and 121; third forenoon, Nos. 51 and 103; fourth, as second. Afternoon, 90, and treat gouty foot and leg as on rising, then leave packing on till morning treatment; diet, 208. No. 77 important, also 168 and 177 when crisis comes out on gouty part, then use 145 or 147. No. 200 sitting; walk as little as you can help, and have legs in horizontal position, or the gouty one at least. 150½ useful.

The following article, on Gout, is from Dr. Hooper's Medical Dictionary:—

"GOUT.—(This word is derived from the French *goutte;* the origin of which, Dr. Good says, is almost forgotten. Most diseases, he observes, attended by tumefaction, were ascribed by the ancients to a flow of some morbid fluid or humour to the affected part, which was called a rheum or defluxion; and the rheum or defluxion was denominated hot, cold, acrid, saline, or viscid, according to the nature of the symptoms. The Arabian writers ascribed even this cause to various diseases of the eyes, which were called gutta serena and gutta obscura, 'clear or cloudy drops or defluxions,' according to the external appearance. Hence gutta, goutte, or gout, means a defluxion of morbid humour to the part; as rheumatism also does.) Several names are given to this disease, according to the part affected; as *arthritis, podagra, chiragra.* It has also been called *dolor podagricus, febris podagrica*, &c. It is characterised by pain in the joints, chiefly of the great toe, or, at any rate, chiefly of the feet and hands, returning at intervals, with more or less of swelling, and redness of the skin; the functions of the stomach being most disturbed previous to the attack.

"It is a very painful disease, *preceded usually by flatulency and indigestion, and accompanied by fever, pains in the joints of the hands and feet, particularly in that of the great toe, and which returns by paroxysms, occurring chiefly in the spring and beginning of winter.* The only disorder for which the regular gout can possibly be mistaken, is the rheumatism; and cases may occur wherein there may be some difficulty in making a just discrimination; but the most certain way of distinguishing them will be, to give due consideration to the predisposition in the habit, the symptoms which have preceded, the parts affected, the recurrences of the disease, and its connexion with other parts of the system. It most frequently attacks the male sex, particularly those of a corpulent habit and robust frame; but every now and then we meet with instances of it in robust females. Those who are employed in constant bodily labour, or who live much upon vegetable food, as likewise *those who make no use of wine or other fermented liquors, are seldom afflicted with the gout.* The disease seldom appears at an earlier period of life than from five-and-thirty to forty; and, when it does, it may be presumed to arise from an hereditary disposition. *Indolence, inactivity, and too free a use of tartareous wines, fermented liquors, and animal food, are the principal causes which give rise to the gout;* but it may likewise be brought on by great sensuality, and excess in venery, intense and close application to study, long want of rest, grief or uneasiness of mind, exposure to cold, too free a use of acidulated liquors, a sudden change from a full to a spare diet, the suppression of any accustomed discharge, *or by excessive evacuations;* and that it sometimes proceeds from an hereditary disposition, is beyond all doubt, as females who have been remarked for their great abstemiousness, and youths of a tender age, have been attacked with it.

"Most nosologists divide it into four species, the regular, the atonic, the retrocedent, and the misplaced, or shifting.

"1. The *regular Gout.*—A paroxysm of regular gout sometimes comes on suddenly, without any previous warning; at other times it is preceded by an unusual coldness of the feet and legs, a suppression of perspiration in them, and numbness, or a sense of prickling along the whole of the lower extremities; and with these symptoms the appetite is diminished, the stomach is troubled with flatulency and indigestion, *a degree of torpor and languor is felt over the whole body, great lassitude and fatigue are experienced after the least exercise, the body is costive, and the urine pallid.* On the night of the attack, the patient perhaps goes to bed in tolerable health, and, after a few hours, is awakened by the severity of the pain, most commonly in the first joint of the great toe; sometimes, however, it attacks other parts of the foot, the heel, calf of the leg, or perhaps the whole of the foot. The pain resembles that of a dislocated bone, and is attended with the sensation as if cold water was poured upon the part; and this pain becoming more violent, is succeeded by rigors and other febrile symptoms, together with a severe throbbing and inflammation in the part. Sometimes both feet become swelled and inflamed, so that neither of them can be put to the ground; nor can the patient endure the least motion without suffering excruciating pain. Towards morning he falls asleep, and a gentle sweat breaks out, and terminates the paroxysm, a number of which constitutes what is called a fit of the gout. The duration of the fit will be longer or shorter, according to the disposition of the body to the disease, the season of the year, and the age and strength of the patient. When a paroxysm has thus taken place, although there is an alleviation of pain at the expiration of some hours, still the patient is not entirely relieved from it; and, for some evenings successively, he has a return both of pain and fever, which continue, with more or less violence, until morning. The paroxysms, however, prove usually more mild every day, till at length the disease goes off either by perspiration, urine, or some other evacuation; the parts which have been affected becoming itchy, the cuticle falling off in scales from them, and some slight degree of lameness remaining. At first an attack of gout occurs, perhaps, only once in two or three years; it then probably comes on every year; and at length it becomes more frequent, and is more severe, and of longer duration, each succeeding fit. In the progress of the disease, various parts of the body are affected, and translations take place from one joint or limb to another; and after frequent attacks, the joints lose their strength and flexibility, and become so stiff as to be deprived of all motion. Concretions, of a chalky appearance, are likewise formed upon the outside of the joints, and nephritic affections of the kidneys arise from a deposit of the same kind of matter in them, which, although fluid at first, becomes gradually dry and firm. This matter is partly soluble in acids, but without effervescence; and Dr. Wollaston discovered it not to be carbonate of lime, but a compound of the uric or lithic acid and soda.

"2. *Atonic gout.*—It sometimes happens that, although a gouty diathesis prevails in the system, yet, from certain causes, no inflammatory affection of the joints is produced; in which case, the stomach becomes particularly affected, and the patient is troubled with flatulency, indigestion, loss of appetite, eructations, nausea, vomiting, and severe pains; and these affections are often accompanied with much dejection of spirits, and other hypochondriacal symptoms. In some cases, the head is affected with pain and giddiness, and now and then with a tendency to apoplexy; and in other cases, the viscera of the thorax suffer from the disease, and palpitations, faintings, and asthma, or pectoral anginea arise. This is what is called atonic gout. A great variety of anomalous symptoms are referable to the same source.

"3. *Podagra retrograda.*—Retrocedent gout. It sometimes happens that, after the inflammation has occupied a joint, instead of its continuing the usual time, and so going off gradually, it ceases suddenly, and is translated to some internal part. The term retrocedent gout is applied to occurrences of this nature. When it falls on the stomach, it occasions nausea, vomiting, anxiety, or great pain; when on the heart, it brings on syncope; when on the lungs, it produces an affection resembling asthma; and when it occupies the head, it is apt to give rise to apoplexy or palsy.

"4. *Misplaced Gout*, is when the gouty diathesis, instead of producing the inflammatory affection of the joints, occasions an inflammatory affection of some internal parts, and which appears from the same symptoms that attend the inflammation of those parts from other causes. All occurrences of this nature, as well as of the two former, are to be regarded as attacks of irregular gout, and are to be guarded against as much as possible.

"Besides the more easily recognised forms of gout, there is no doubt that the gouty diathesis gives rise to a specific inflammation of various membranous parts. This is exemplified in the gouty form of iritis. (See *Iritis*). It appears also to exert, occasionally, a pernicious influence on the nervous system; and Beer admits a distinct form of gouty *amaurosis*. See *Amaurosis*.

"In attempting the cure of this disease, our attention must be directed to the paroxysm, and to the management during its absence; and particularly to the state of the constitution and previous habits, which may demand different and opposite plans.

"*Treatment of the paroxysm of a regular fit of Gout.*—From the belief that a regular fit of gout was an effort of nature to throw off some peccant humour which formed the essence of the disease, it was formerly left to itself, or perhaps encouraged to proceed through its course without interruption. This opinion is now abandoned, and the practice is to endeavour to subdue the paroxysm by the ordinary means resorted to in inflammations of any other kind; *as bleeding, purgatives, sudorifics, local astringents, refrigerants*, &c., so managed as to prevent any danger of repelling the gout to some internal organ, and thus converting a regular paroxysm into a retrograde or atonic gout. Sydenham prohibited purging and sweating, and only allowed bleeding in young and vigorous constitutions, during the first or second paroxysm. He admits of the use of laudanum where the pain is acute; and he trusts chiefly for the cure of the disease to an alterative regimen, and apozems to be resorted to in the intervals. Dr. Cullen allows bleeding, with the same restrictions as Sydenham, though he recommends the application of leeches to the part, as at all times a safer practice than the use of the lancet. Of cathartics and sudorifics he takes no notice, otherwise than as these may enter into the general course of an antiphlogistic plan: he is decidedly averse to the use of cold, and thinks that warm bathing and emollient poultices, blistering, burning with moxa, camphorated and aromatic oils, induce the inflammation to shift from one part to another, and consequently tend to repel the inflammation from the extremities to some more important part; while opium, though it affords relief in present paroxysms, occasions them to return with greater violence; and therefore he observes, by way of conclusion, 'The common practice of committing the person to patience and flannel alone, is established upon the best foundation.' Now, says Dr. Good, as the gout, after it has shown itself in paroxysms, is never idle; and as one paroxysm, in the opinion of Sydenham, Cullen, and every other physician, hastens on another, renders its intervals shorter, and its duration longer; and progressively saps all the energies both of mind and body, and renders life itself a burden, it is of serious importance to inquire whether this fear of a repulsion, however well founded in some instances, is not allowed too generally? whether it be not possible to draw a definite line between the form of the disease in which it ought to operate, and that in which it ought not? and whether, in the latter case, we may not derive all the benefit from a full use of a reducing process, which is obtained in other inflammations, accompanied with a like degree of constitutional vigour?

"From the history of gout, we may draw this general corollary: that when once excited by some occasional cause into action, it has a peculiar tendency to fix and expend itself upon the weakest parts of the system; and, where several parts are equally weak, to pass in sudden transitions from one part to another, though transitions are rare where the system is sound.

"In healthy constitutions, the weakest parts are the extremities; and hence, in such constitutions, these are the parts in which the gout uniformly opens its assault.

"In unhealthy habits, however, the extremities are not the weakest parts of the system, but perhaps the stomach, or the heart, or the head, or the lungs, or some other organ; while several of these organs may, moreover, be equally debilitated, according to the idiosyncracy or to accidental circumstances. And true to the general rule, the gouty principle, when roused into action in habits of this kind, fixes itself from the first on one of those important viscera rather than on the extremities; or roaming from one to another, on its alternating its course from these organs to the extremities, or from the extremities to these organs. And as metastases are rare where the system is sound, they become frequent in proportion as it loses its character, and especially in proportion to its debility in particular parts.

"These are rules which cannot be too closely studied and committed to memory, and they seem to point out the line of distinction between that form of the disease in which a prudent fear of revulsion ought to be entertained, and that in which we may safely act without any such fear whatever. They directly lead us to two states of constitution that require a very different, and in many instances a very opposite, mode of treatment; and seem to settle the important question before us, under what circumstances it may be expedient to employ a palliative plan, and under what a cooling and reductive.

"We shall commence with the first of these two states, forming a regular but violent fit of gout as it shows itself in a sound constitution, and inflicts its torture on the hand or the foot. Guiding ourselves by the laws just laid down, there seems no reason why, instead of 'committing the person to patience and flannel alone,' we should not pursue the evacuating and refrigerant means employed in active inflammations of any other kind, and have cause to expect a like success: such as bleeding, so strongly recommended by Dr. Heberden, and allowed occasionally by Sydenham, and emptying the bowels, relaxing the skin generally, and cooling the fiery heat of the affected limb by cold water, or any other frigorific application. With a transfer of morbific matter we have now no longer to contend. Yet, even where such a cause is admitted, as in most exanthemata, the plan thus proposed is, in many instances, pursued without hesitation.

"*In weakly habits or idiosyncracies, or incidental debilities of particular organs, a metastasis* (*the translation of a disease from one part to another*) *is a frequent result, and peculiarly marks the character of gouty inflammation; and here refrigerants, violent purgatives, and venesection ought to be most sedulously abstained from; and the best practice is that of 'committing the person to patience and flannel alone.'*

"The inflammation of a regular fit of gout subsides gradually, though rapidly, under the treatment now proposed, without any repulsion whatever. Yet, in a few instances, it has seemed to be repelled in part, whilst it has chiefly passed off by resolution.

"The use of local refrigerants is by no means of modern invention, however it may have become a subject of warm controversy in the present day. The application of cold water is recommended by Hippocrates and other Greek writers; by Celsus; by many more modern authors, as Camerarius, Zacutus Lusitanus, Kolhaas, and Keck. Bartholine speaks of the use of snow as a common application in 1661, and Pechlin, both of snow and cold sea-water towards the close of the same century. Heberden approved highly of the use of cold water, which has also received the more recent recommendation of Drs. Kinglake and Mason Good.

"But this treatment has often been employed rashly, and sometimes with great and even fatal mischief. It ought never to be ventured upon except, as already stated, where the constitution is decidedly sound and vigorous.

"Leeches may, in many instances, be applied where venesection would be of doubtful expediency. A liniment of oil of almonds, impregnated with opium, rubbed on the tumefaction with a protracted and very gentle friction, is often found very serviceable in mitigating the pain; and epithems of tepid water, as recommended by Dr. Scudamore, alone, or mixed with a portion of ether or alcohol, formed by cloths wetted with the fluid, and applied to the inflamed part, renewable as they become dry, in many cases prove a grateful substitute for cold water; and are preferable to poultices, warm water, or even vapour-baths, which too generally relax and weaken the joint, and prevent it from recovering its elasticity, after the paroxysm is over, so soon as it otherwise would do.

"*At the same time, the body should be cooled with gentle aperients or injections;* and while drenching sweats are avoided, which never fail to be injurious, the breathing moisture should be imitated, which often breaks forth naturally in an early part of the morning, and is sure to afford relief after a night of distraction. Nor should opium be omitted where the pain is very acute; for, while it affords temporary ease, it diminishes the duration as well as the violence of the paroxysm.

"The regimen should be light and unirritating, and the diet below the standard to which the patient has been accustomed; though, to guard against a metastasis to the stomach, we must be cautious that we do not reduce it too much. His chamber should be well ventilated, and his dress light and easy.

"In the varieties, constituting atonic and retrocedent gout, there is a podagric diathesis grafted upon an unsound frame; the unsoundness being general or local: and, however fearless we may be of the disease fixing on any internal organ in the preceding variety, we have here a constant apprehension that it may do so, and in many cases see it commence in such organs.

"In atonic gout, our uniform attempt should be to produce a transfer from the part on which it has seized, and fix it in the extremities: in retrocedent gout, on the contrary, to render the vacillating attack on the extremities more permanent, and prevent it from shifting to any other quarter.

"To obtain the first intention, we have to strengthen and even stimulate the system generally by warm tonics and a generous diet, and, above all things, to take off the severe suffering, in whatever it may consist, from the affected organ: for the longer the fit continues there, the weaker it will become, and the less capable of any instinctive remedial exertion. At the same time we may solicit the paroxysm to the extremities by putting the feet into warm water, and thus unstringing the tone of their vessels; so as to bring the standard of their atony below that of the affected organ.

"In atonic gout, the sufferings, though widely different according to the seat of the disease, are almost insupportable. In the head the pain is maddening, or the disorder is accompanied with great horror, or mimics the stupor of an apoplexy: in the stomach there is a faintness like that of death, with the sense of a cold lump of lead lodged within it; or there is a gnawing or a burning agony, or a spasmodic stricture which seems to cut the body in two, and renders breathing almost impossible; often, also, accompanied with a rapid and sinking palpitation of the heart.

"It is of importance to determine accurately that these anomalous symptoms are really those of gout; of which we have chiefly to judge from the general character of the patient's constitution, his hereditary predisposition, habits of life, and the ailments to which he has been previously subject. In most cases, too, during the paroxysm, and especially where the stomach is affected, the warmest cordials are necessary: as brandy, the aromatic spirit of ammonia, the tincture of ginger, or of capsicum, or, what is still better, usquebaugh. And it is always advantageous, and especially where the bowels are confined, to add to it some warm aperient, as aloes or rhubarb. Most of the family gout-cordials are made upon this principle, and judiciously consist of some active aperient and the hottest aromatics, dissolved in ardent spirits. And the patient, who is subject to these attacks, should never be without having something of this kind at hand, since the paroxysm often makes its onset without any warning. Yet he should resolutely forbear having recourse to any such medicine, except in the time of necessity: for an habitual indulgence in any one of them will still farther debilitate the affected organ, and indeed the entire system; and hence quicken the returns of the paroxysm, and render the antidote less availing. Most of the preparations of ether may be employed with benefit in the variety before us, and particularly in that icy coldness of the stomach, accompanied with a numbness of the limbs and a rapid palpitation of the heart, under which it occasionally exhibits itself. External irritants may also be beneficially employed at the same time, and particular those of rapid action, as the compound camphire liniment, and sinapisms; at the same time the extremities should be plunged into the warm bath. *But our sheet-anchor is opium; and it should be given freely, and in union with some preparations of antimony, so as to act towards the surface generally, and thus restore to the living power its interrupted equilibrium.*

"In retrocedent gout the same plan is to be pursued, where the attack has actually shifted from the feet or hands to some internal organ.

"In gout, the *intervals of this disease* are of as much importance to be attended to as its paroxysms: and here, also, the mode of management under the first form should differ essentially from that under the second; for though the occasional causes may, in many cases, be the same, they have in the former to operate upon a vigorous scale of power, and in the latter, upon a scale decidedly reduced.

"In every variety, all known occasional causes must be equally avoided. Where the diet has been too rich, it must be lowered; and where too spare and abstemious, made more liberal. Indolence and a sedentary life must give way to regular exercise; and over-exertion of body or mind, to repose and quiet. In the young, robust, and corpulent, whether the disease result from too great indulgence at the table, or an habitual taint, it may be requisite to abstain from animal food, wines, and fermented liquors altogether; but where the sufferer has passed considerably beyond the zenith of life, and the luxuries of the table have become habitual, his ordinary fare should be reduced or diminished, rather than entirely commuted. And in every change, it is better to proceed slowly, than to rush rapidly from one extreme to another: since nothing has so great a tendency to prepare the internal organs for gouty paroxysms, as such sudden and violent transitions. The bowels should be kept in regular order, and the hour of rest be early.

"A due and unswerving attention to these general rules of the hygiene, will often be sufficient to keep those free from all disturbance of the gout for many years, and perhaps for the whole of their subsequent life, who have only known it in the form of a few regular paroxysms. But where the system, and especially the digestive function, is weak, and the patient has had anticipations of a tonic or recedent gout, or has actually suffered from its assaults, it will be necessary to superadd a course of *invigorating medicines*.

"There are three classes of remedies that generally pass under this name: stimulants, bitters, and astringents. The first increase the action, the last two augment the tone. *Stimulants can rarely be employed alone, except in cases of emergency; for a lax state of fibres will bear little increase of action without, at the same time, suffering an equal increase of debility.* But they may often, and in the case of gout perhaps always, be combined with astringents and bitters with great and decisive benefit.

"Most of the celebrated specifics for preventing a return of gout, have been formed of these classes of medicines in combination, and especially of bitters and aromatics: and it is singular that, although the variety of them which nature offers to us is almost infinite, they have been employed with little change from the time of Galen and Cælius Aurelianus, in the second century, to that of Sydenham, in the seventeenth.

"There have, in all ages, been offered to the public, specifics for the sudden cure or removal of the paroxysm when present, as well as for preventing its return hereafter. Lucian, in his Tragopodagra, gives us, with great humour, a list that occupies a page of such as were chiefly in vogue in his day; and the catalogue is certainly not diminished in our own. Those that have acquired the highest reputation, appear to have been composed of some species of hellebore, or of meadow-saffron; the first of which is among the remedies quoted by Lucian, though it is probable that the ῥιζα ἑλλεβορου of the Greeks belonged to a different plant from either the white or black hellebore of modern dispensatories.

"The favourite specifics of the present day are M. Husson's *Eau médicinale*, and the *Vinum colchici*, or wine of meadow-saffron, introduced in the current pharmacopœia of the London College. The exact components of the former are kept a secret; though its basis is now universally believed to be either the root or some other part of the meadow-saffron. The effects of the Eau médicinale and of the colchicum wine, do not essentially differ; for, after taking about sixty drops of either, the pulse becomes slower, and at length sinks, in about twelve hours, from ten to twenty strokes in a minute below its natural number, at which time the inflammation subsides. The action of both medicines is accompanied with great languor, and a deadly nausea or sickness, which terminates in vomiting, or a discharge from the bowels, or both. *If the dose be in a small degree in excess, the symptoms are syncope, cold sweat, extreme prostration of strength, violent vomiting and purging, a wiry and almost imperceptible pulse, or a state of utter and very alarming insensibility. And, in some constitutions, these effects have followed from the use of even a common dose.* So that these preparations seem to be rather stronger drugged than the celebrated oxymel colchici of Stoerck.

"It is possible that the colchicum may act by a specific power on the peculiar inflammation of a regular fit; yet as other intestinal irritants have occasionally produced a like effect, and particularly the *Gratiola officinalis* and *Ranunculus flammula, the disappearance of the paroxysm may also be ascribed to a transfer of action to the stomach and intestines.* Generally speaking, specifics operate by a secret and inexplicable power, as the bark in intermittents, the vaccine virus in shielding the constitution against small-pox, and mercury in syphilis: for though a ptyalism, salivation (*see article farther on*), gives proof that the system is impregnated with the last, there are few practitioners so attached to the Cullenian doctrine in the present day, as to contend that the venereal virus is carried off by the salivation, since we are perpetually beholding it carried off under the influence of mercury without any salivation whatever.

"Admitting yet, that the colchicum has a specific power over a regular inflammatory paroxysm of gout, it is clear that it has no such power over the gouty diathesis, since the paroxysm has never been so removed as not to return again. And hence it is a matter of reasonable discussion, whether the constitution is not liable to suffer from the sudden resolution of the local inflammation, and whether, by the exhibition of the colchicum, the returns of the paroxysm may not be increased in frequency, while they are diminished in duration. The general impression among practitioners in the present day seems, however, to be favourable to the use of colchicum.

"From the rapidity and force of its operation, it is clear that it ought never to be tried, except in the first variety of gout, or where the system is firm and healthy, and the disorder shows itself in a regular fit. And as it is highly desirable to restrain the violence of the paroxysm, shorten its duration, and carry it off as soon as possible, the use of the colchicum may be judicious so long as the system is able to recover itself readily from its influence, and provided the patient limits himself to the smallest dose that will answer the purpose."

I have given the foregoing article at length, although space is valuable to me in a work which is to be sold at a loss, but I wish to bring before the public the principles of Allopathic treatment, as well as those of Hydropathic practice, that they may judge which has foundation in reason and truth; and I do not fear the comparison for Hydropathic practice. The simplicity of our applications puts them within the reach of all in every station of life, wherever a little water and the commonest necessaries are to be had; the principles, too, are simple and easily understood. Veritas est magna et prevalebit. Truth is great, and will, in time, prevail over prejudice and the decrees of dogmatising bodies, who hate all intervention with their time-honoured systems.

PRECAUTIONARY MEASURES to ward off consumption and other diseases should be taken early, when self-denial and exertion would prevent years of misery often ending in premature death.*

I am sometimes asked how it happens that persons get into a bad state of health, whose habits have been strictly correct, and who have never indulged their palate at the expense of the stomach? I reply, it is easily accounted for. The body is in a constant state of waste and reparation. Active exercise in the open air is a condition of healthy existence; and just so far as mankind can enjoy this, is their prospect of having a healthy body. By every voluntary action the cellular tissue is displaced, and a call made for new matter to replace the waste. By every active inspiration, the pure air is forced into the minute air-vessels in the lungs with a power of 4 cwt.; where it gives to the blood the life-giving oxygen which consumes the carbon or waste matter. By a sedentary life, or a bad atmosphere, the old worn-out matter is not removed; the carbon in the blood is not consumed, for want of the oxygen in fresh air. The nervous system soon feels the effects of this unnatural state; and hence comes dyspepsia, and the long train of evils caused by having worn-out matter in the frame, instead of living flesh and nerves. Sometimes this enfeebled state goes on until the frame becomes a wreck, or some weak vital part gives way, and the body dies by inflammation or fever, &c. We find Ling's or the Swedish movements of great service in most cases, and especially in weakness of the chest; even a delicate person may exercise the chest and arms to great advantage by sitting in a chair, clenching the fists, working the arms and shoulders, and at the same time expanding the chest, with the head thrown back, opening the mouth and breathing freely, moving the trunk backwards and forwards. An immediate warm sensation will generally be felt in the muscles of the chest.

The amount of exercise should be regulated by the strength of the person; over-fatigue would bring on excitement and mischief. Exercise should be frequently practised for a few minutes at a time, and habitually expand the chest: this would prevent consumption in many cases. It is melancholy to see such numbers of comparatively young persons, and especially females, with chest affections brought on by inattention to the natural laws of health,—sedentary habits, warm rooms, stimulating food and liquids, undue brain excitement from study, before the frame is fully developed, late hours, and in many cases by over-anxiety to realise what is thought a necessary maintenance.

Then again little attention is paid to the requirements of the body in clothing; fashion or custom is more thought of than the physiological structure and functions of the body. With very few exceptions, all the patients who come to my Hydropathic Establishment in autumn, winter, and spring are very inconsistently clothed. Cold water will never cure invalids, or enable them to resist cold, without proper clothing in this climate. The chest is very generally the most exposed part of the body, except the head and hands; and it should be the most protected, as well as the stomach and liver, and bowels; for if the vital warmth of those parts is lowered, their functionary power of action will be just so much lessened. I believe, one of the principal causes of disease with those who lead sedentary lives, or are exposed to the weather, is the little care that is paid to keeping the trunk of the body well protected, and the vital heat retained in it; and the little or mostly no attention paid to exercising the body. Exercise, as I have before remarked, may be had without either a large space or long walks. Ling's little book, price one shilling, will instruct in the manner to move the limbs and body in various directions; and it must be remembered, that every movement works off some old worn-out tissue, and stimulates circulation. Thousands, and especially ladies, never exercise their limbs and body only by slowly walking from one room to another, or when in the open air never exert their physical powers to bring good healthy circulation; and as the Creator has made the exercise of all the muscles and bones of the frame a condition of health, and man cannot alter or abrogate those laws, they must either be obeyed, or the consequences of acting independently of them must be experienced.

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* *For treatment of sudden inflammation of the lungs, see p. 79.*

A case of this kind, where these laws have not been either understood or acted upon, has consulted me by letter, this morning, stating he is occupied in a wholesale warehouse, in a close part of the city, from 8.30 A.M. to 8 P.M., with only one hour during that time for meals and rest, gas-lights burning often all day in winter. The consequence is, that a chest complaint has been established that will probably soon render him unable to continue his employment; he will be recommended to country air, and go there to die, leaving a wife and family to struggle on in life, surrounded with difficulties which are very likely to bring them to the same melancholy state. The answer is, we must attend to business or starve. There is no reason in such an observation; men should be content with any employment and remuneration, rather than place themselves in such positions,—contracting ties and engagements that they are eventually unable to fulfil, and by the attempt multiply misery and disease. How often when success in business crowns their efforts, they find they have sacrificed what money cannot purchase, and by no efforts can regain the health they have lost, or ability to enjoy life. They then often envy the very out-door labourer; but when the mischief is done, regrets are useless, and often a settled melancholy rests upon the mind, further depressing, and hastening the climax.

The more experience we have in cases of diseases of the lungs, and less hopes we have of curing many of such diseases; for generally they are cases such as I have just described, who come for a short time to be patched up, and return to the same course of life, still hoping against reason that they can yet go on with a little more care, when in fact only an entire abandonment of their business and locality can be of any permanent use to them. Females are also, either by their occupations, or previously contracted sedentary habits, or from family duties, in the same position; and all we can do is to give them instructions how to ward off attacks and improve their health in a degree, and in this our mild Hydropathic plans, and instruction in clothing, diet, and habits, are eminently successful. We have had many successful cures in females, where affection of the lungs has come on from excess or stoppage of periodical discharge, and when our sitz baths, &c., have regulated the constitution, health has been regained; in other cases, both male and female, after a course of our treatment, they have changed their occupations or residence, and adopted our other instructions, and have been permanently restored to sound health.

CONSUMPTIVE PERSONS may use the water treatment with advantage, but it must be very cautiously applied, and not with cold water, say seventy-five to eighty degrees. To give a general idea of our plan of treatment, I give as follows, which of course has to be varied according to the age and nature of the case. (See bath list, Nos. 23, 26, 68, 71, 72, 74; chest compresses, according to vitality of patient, Nos. 179, 180, 182, 196, 197, 198, 207, 208, 212, 213). Keep the body covered as much as possible during the operations with a blanket, and dress entirely and quickly. It is important not to expose the body to the air while undressed, as it rapidly loses heat, and in persons of weak habit is injurious. The ordinary plan of sponging the body with cold water by delicate persons is often very injurious. Wear a chest compress night and day, frequently sprinkled with a little tepid water, but not to drip. Cod-liver oil is efficacious—two tea-spoonfuls per day, one after breakfast and another after tea. Light hosiery vest for summer, good lambs' wool for winter, and lambs' wool stockings winter and summer. Ripe grapes or strawberries good, and also stewed fruits; no kind of stimulants or coffee. The clothes to fit up to the throat, especially in winter, and short sleeves to outer waistcoat, to protect the armpits. If the bowels are not regular, use No. 78 on list. Some consumptive patients cannot bear much treatment, and then feelings and symptoms must dictate.

RUBBING THE CHEST with hand and cold water, and wearing flannel pad or wetted chest compress, will strengthen the chest, the rubbing twice a-day; summer dress should be changed at the end of August.

For mode of treatment I give several cases:—

Case No. 1, a single lady, age 28, consumptive family, apparently rather stout, but not healthy appearance, slight cough, especially in a morning, almost constant slight pains in chest, extremely susceptible of cold, monthly periods sometimes suppressed, at other times in excess. Treatment successful, and under it gained weight considerably with care. This case may enjoy tolerable health.

Sleep as long as you can in the morning, and have a raw egg well beaten up in a little warm water, as soon as you awake; on rising have a towel rubbing, with 90 deg. water. Forenoon have the chest rubbed with the hand, and 70 degrees water three minutes, No. 72, keeping the hands and feet in 95 deg. mustard and water No. 156, during the time. Afternoon: have a lady's running sitz, No. 108, for five minutes, and if the feet are cold put them in 90 deg. mustard and water for five minutes. Put on a dry full length spongio piline compress with collar, No. 180. Also put on the oil silk and flannel dry, half chest compress without collar on behind. Take a tea-spoonful of cod-liver oil twice a-day. Take beef-tea before the forenoon treatment, and another raw egg before the afternoon treatment; whenever there is any pain in the bowels, use No. 76 or 77, and sip cold water. Do this after every meal for an hour.

TREATMENT OF A CASE. No. 2.—A Solicitor, age thirty-five, fully developed frame, energetic, and of rather excitable but very cheerful temperament, strictly temperate in his habits, married—(constitution not injured by any excesses) has lately come to inquire about Hydropathy. His brothers have died of consumption; he has some tenderness of the chest, very subject to flushing heat in the face and head, with rather an hectic complexion. He had been advised to expose his chest, by way of hardening it; took freely of flesh meat to strengthen him, with a fair allowance of bitter ale and wine, but what would be considered only an ordinary quantity. Driving out at night, unaccustomed to wearing a wrapper round his throat, and breathing the night air freely, under the idea that all the air he got the better, summer or winter. His naturally cheerful temperament kept him up; but both he and his friends began to be somewhat uneasy at the tendency to affection of the chest, and the uncomfortable flushings of the face, restlessness and inability to sleep well, symptoms which the use of animal food and his allowance of stimulants were so well calculated to increase. Now this is a case that would inevitably have progressed to pulmonary consumption, and the advice he had had was more likely to accelerate such a consummation than prevent it. I feel quite assured that this patient will owe his life, under God, to coming to my Establishment. I heard the history of his state, past and present, and I then made a survey of his clothing, a point seldom noticed as it ought to be by doctors, but which is quite as essential to health as any treatment of any kind, and absolutely indispensable to be attended to. It was February, and he wore, as most men in his position do, a fine broad cloth coat, and waistcoat of silk, or some light material, satin or black silk tie round his throat. The lower part of his person was well protected from the cold, where, especially behind, it would have been very much better for his health to adopt the highland garb; but the chest and throat, where it is so absolutely essential to keep good surface circulation, and prevent congestion of the blood-vessels, according to almost universal fashion in this country, were allowed to be exposed to the "*free air;*" this "*free air*" closing the minute capillaries, driving the blood from the surface of the skin, closing the absorbents, and preventing nutrition so essential to the covering of these vital parts. I ordered stout lambs' wool under waistcoats, pants, and socks, a beaver cloth coat and vest, *the vest made to button up to the throat, and with short cloth sleeves, about six inches long*, silk scarf to replace the tie; to wear one of Maw's* respirators whenever he went out into the cold, and always when driving or riding in winter: very little meat, and only once a-day (mutton best), potatoes or other vegetables, no stimulants at all, and no coffee. I began with the following treatment while at my establishment, which soon told beneficially, and now, nine months since he was with us, I hear is in excellent health.

TREATMENT. On rising, first morning, hot washing and soaping, sitz, and sponge down nearly cold. Second morning, dripping sheet, 70 deg. Third morning ditto. First forenoon, fomentation on the chest twenty minutes, and

* Maw, 11, Aldersgate-street, London, 5s. or post free 5s. 4d.

wipe with wrung-out towel; dress, and have sitz seventy degrees, five minutes. Second forenoon, hot and tepid back wash four minutes, feet in hot water. Third forenoon, Lazy Pack, No. 50 on list. First day, sitz 80 deg. six minutes, with a hot pad to chest while in, and feet in hot mustard and water. Third afternoon, ditto, half chest silk compress and flannel body bandage, wrung out of warm water. Forenoon, fourth day, fomentation on the chest twenty minutes, wipe dry with cold dry cloth, then mustard plaster over the throat and chest, sponge it off dry, and putting on dry flannel chest compress, not damping the compress till bed-time, as the wet takes away the effect of the mustard, which is intended to bring out a rash, and must be repeated until the chest is relieved. Fifth forenoon, fomenting pack one hour, and tepid wash down. Afternoon, sitz, 80 degrees, six minutes, and afterwards mustard foot and head bath, eight minutes, wearing woollen gloves in cold weather. Use the respirator when out in the cold. Little cold mutton to dinner, with a moderate quantity of vegetables and pudding; body bandage night and day, wrung out of warm water.

Case No. 3.—A Clergyman married, age thirty, rather slight frame, not consumptive habit, but bilious temperament; and from being salivated and blistered for liver complaint, was brought into a low state of health, and the lungs became affected; he came to us with slight spitting of blood, and great prostration. The following was prescribed, and suited the case. On rising No. 92 and 12. Forenoon 74, afternoon 113, and once a-week 52, 50, and 48, 180, 198, 211, 212.

Case No. 4.—A gentleman, age fifty-four, fair natural constitution, lived rather fast, took a good deal of mercury; twelve months ago an attack of bronchitis rather severe, and from this time sunk a good deal in flesh, with occasional blood-streaked expectoration; much emaciated, hair now grey, slight cough, frequent pain in right breast, sometimes sharp. First prescription, which suited him well—On rising a raw egg beat up in a little warm water, then bath 68 and 26; omitting mustard plaster when skin becomes tender, and apply it again when the skin will bear it. Forenoon 74, nothing in afternoon, go to bed at 8 p.m. and have 68 without mustard. Breakfast, lukewarm weak black tea, and a saucer full of Scotch oatmeal porridge and a little milk, and little bread. Before treatment at 11.30 a.m., cup of beef-tea with a little toast; dinner, little rabbit, fowl or game or fish with toast and water; and small quantity of rice, sago or tapico pudding, no vegetables, and instead have boiled rice. Tea as breakfast. Bed-time, small basin of arrowroot or sago, sweetened with lump sugar, use No. 76; be very cautious not to eat more than can digest well; better take too little than any too much; be careful of over-fatigue, especially of cold or damp clothing according to direction for season. Keep the surface of the body always warm, see No. 196.

Case No. 5.—A gentleman, age twenty-eight, tall spare frame, bilious complexion, eyes rather sunk, of a consumptive family. Five years ago sedentary occupation brought on a slight spitting of blood; changed his occupation, and travelled; was better; then married, and entered in a shop business: habits always regular, and abstemious; worked hard, health failed, and a renewal of the blood-streaked expectoration came on, when he came for a fortnight to my establishment in August. First prescription—On rising 212, then 14; every morning sip some cold water, and walk only in outer saloon before breakfast. Forenoon, 90 every day; afternoon, 156, 207, 177, damp compress only on rising and bed-time; 72 before first bath, and on going to bed; every Saturday have 52 gentle, and take no treatment on Sabbath except 72, 208, 212, 213, 198, 200.

Case No. 6.—Gentleman, tall and stout, excellent constitution, of a long-lived family, twenty years since slept in a damp bed, brought on an inflammatory attack on lungs;—was apparently restored to his usual good health, except always a slight sensation in the chest; ever since travelled a good deal; drank rather freely of malt liquor after a cold last winter; spat small quantities of blood, went under medical treatment, and in a month apparently well again, and resumed his travelling; after three months, spitting of blood returned, and again went under his former surgeon, who this time failing to stop the bleeding, tried Homœopathy without relief, and then came to Matlock Bank Hydropathic establishment, as is mostly the case when all other means have been tried, and the frame often nearly worn out with attempts at cure, and it is only surprising many do not die soon after their arrival. Here it is evident the first inflammatory attack has never been entirely eradicated. Prescription to begin with—On rising, No. 52 gentle; forenoon, 74; afternoon, 19; standing on hot pad on going to bed 72, 180, very moderate quantity of food, and little flesh meat; rest from treatment on Sabbath, except 72.

Bronchial affections are often brought on by exposing the throat and chest, or by ministers from great exertions in speaking, and taking no precautions to soothe and stimulate the throat after their duties by water treatment; a slow inflammation is commenced and increased by repeated exertions in preaching, and is neglected; stomach derangement will very commonly bring the complaint on, and, if not stopped, the vitality of the body is soon lowered, from the air tubes being clogged with mucus, and so preventing oxygen from getting into the blood.

CASE OF BRONCHITIS AND GENERAL DERANGEMENT OF HEALTH.— A merchant, age fifty, rather stout, but for a long time with a tendency to bronchial affection and weakness of the chest, aggravated whenever the digestive organs were out of order, causing difficulty of breathing and feeling of exhaustion, tried the usual medical mode of patching up until he became tired of it not giving him any permanent relief. He heard of my establishment, and came with a friend, and, as he remarked to me the next evening, he, for the first time in his life, had received proper instruction how to live, to clothe, and to keep his body in good serviceable condition. The following is the first prescription book I gave him. This treatment, with some alterations, and more tonic, as he progressed to recovery, brought him into good health.

First day, a hot soaping, sitz (pad on chest) four minutes, then a sponging over quickly with cold water. Second day, on rising, tepid sheet. Third day, on rising, as first. Forenoon, first day, foment the front twenty minutes, followed by a wet sheet nearly cold. Second forenoon, fomenting pack one hour, then sponging nearly cold, standing on hot pad. Third forenoon, as first. Afternoon, first day, sitz at 90 deg.; a hot pad to the chest, and feet in mustard and water 100 deg., wipe with wrung-out towel, then a sitz run down to cold before coming out. Second afternoon, sitz 80 deg. six minutes run down to cold one minute, the feet in water 100 deg. every day, half chest compress night and day, calico body bandage in day, flannel at night wrung out of warm water. Moderate flesh meat, small quantity of cold mutton, at dinner, vegetables, and pudding. Second week, forenoon, first day, foment the chest twenty minutes, then to have a mustard plaster to the bottom of the throat and upper part of chest as long as it can be borne, then wipe off dry and put on compress without damping it again; after this, dress and have the legs to calves in hot mustard and water fifteen minutes, and then rub with a dry cloth. Second forenoon, hot and cold back wash, feet in hot water, holding hot pad to chest four minutes. Third forenoon; if the first forenoon treatment has not brought out much redness, repeat it; but if the chest is tender from the mustard repeat the second forenoon treatment. Fourth forenoon; spirit lamp and tepid sponge over, dress and have sitz 80 deg. five minutes. Afternoon; sitz at 80 deg. five minutes, afterwards hot mustard and water foot and hand bath eight minutes. A little cold mutton to dinner, and but little always. Always avoid hot ribs of beef, but may eat it cold.

Comply strictly with the necessary rules for your diet and clothing if you are to escape chronic bronchitis and asthma, and to this end you must first avoid all stimulants, pastry, or anything indigestible, however it may tempt your palate; for if your stomach is out of order, the mucous inflammation will immediately affect the bronchial tubes. Again, it is quite imperative to guard your throat and chest from cold, and to keep up surface circulation; if this is attended to, you will often escape attacks, and prevent internal congestion. The outer waistcoat should have short sleeves, and button up to the throat, and I would advise this plan, winter and summer, only in summer time have light material. The ordinary plan of waistcoats leaves the armpits exposed to suppressed perspiration, where the frame is so sensitive to it. Lambs' wool under vests in winter; middle, or what is called super merino for May or June when the weather changes, and light gauze merino for the hot weather. Always wear a flannel pad two thicknesses over the chest, under the lambs' wool vest in winter. Always use the respirator (Maw's, 11, Aldersgate-street, London,) in cold weather, and on going out in an evening, the cold or damp will not injure you, and when you go out in the cold with it breathe through the mouth. You may go out with this respirator on, in high winds, or any degree of cold, with perfect safety. I have personally proved this. Eat sparingly at all times, and never take supper. Any stimulants or tobacco will be highly injurious to you. Avoid cold water shocks to your chest in cold weather, by having a flannel pad on when you take your cold dripping sheet. A slightly tepid dripping sheet will be best for you in winter, and cold washing sitz in summer, rubbing the chest with hand and cold water for two or three minutes beneficial frequently.

CASE OF BRONCHITIS.—A gentleman, about forty-eight years of age, a government inspector of fisheries, tall, worn to a skeleton, expectorating matter in large quantities, and having no appetite, was recommended to try my establishment as a last resource. Two eminent physicians, and his own surgeon, gave him no hopes of restoration. Every means had been tried to stop the progress of the disease, but it had never been checked. Blisters would not do it; morphia was useless; porter and flesh meat were prescribed to keep up the sinking strength in vain; the drain continued, and death stared him in the face. He came to my establishment in the autumn of 1854. As soon as he arrived I inspected his clothing, and condemned it; ordered the fine broad cloth and slight under clothing to be replaced by substantial beaver cloth, and none being at hand, I lent him a winter suit until the tailor could clothe him. He was well washed over with hot soap and water, had then a tepid wash; wore a spongio piline chest compress with collar, and a spongio spinal compress night and day, sprinkled once a-day with warm water; had a body bandage wetted only over the abdomen, and wore only part of the day; the bottom of the throat and top of the chest were kept constantly red, for weeks, with mustard poultices, and fomented for half an hour every day, occasionally No. 59. No stimulants and no flesh meat were taken, having only slight general treatment; the throat was constantly packed with damped spongio, and a woollen scarf over; other treatment a good deal similar to former case. The result was, that at Christmas he presented himself at Edinburgh to the Royal Commissioners, entirely well, and was reappointed to the cold situation in the extreme north of Scotland he had held before, and to this day he has been able to perform his duties in good health. Nature did all this,—nursing the body, soothing the frame, doing everything to aid nutrition, forcing in nothing, nor putting stuff into the stomach in the form of physic, &c. that nature can never work into good aliment.

SUDDEN ATTACK OF BRONCHITIS will generally be arrested by the following plans—first, No. 35, then No. 68, and 138, 98 at bed-time; the following day have on rising No. 7, during day 74 or 59, and at night 98 and 79, 208, 198, 196, 153, 177, 172.

THROAT AFFECTION AND DIFFICULTY OF BREATHING.—An elderly lady had for a long time been troubled in this way. A flannel wrapper wrung out of hot water was put round the throat every night, and a large roll of dry flannel over it; this was continued for a week, sponging the throat with water 80 deg. in the morning, and putting usual half-chest wet compress on with collar during the day, soon quite removed the complaint. If stubborn, mustard plaster on the throat and kept red for a few days, with hot mustard foot bath at bed-time, will aid the fomentation. See Nos. 79, 80, 81, 82 on bath list.

INFLUENZA.—The treatment varies according to the age and strength of the patient. In ordinary cases we commence with 46, and 6, or 30, then 156, afternoon 93, bed-time 156, 194, 168, 172, next day same and 208, 212, 213; 59 is very useful in some cases. Any stronger treatment will be prejudicial as the strength is always greatly reduced in these cases, and in fact it is the lowered vitality of the frame which is the cause of the complaint: next warmth and patience are requisite. Influenza is not to be got rid of like a mere cold or bilious attack; and every attempt to do so will only more endanger the patient's life by laying the foundation of chronic disease. If 47 cannot be managed substitute 52.

QUINSY, OR INFLAMED, OR ULCERATED SORE-THROAT.—46 and 80 same time, and 6 after pack, then 79 and 177, 166. In two hours use 82, until relief is given, then 79. 98 at bed-time, soaping and feet in hot mustard. No. 138 during the day for fifteen minutes good. A perseverance in these plans will certainly cure without medicine. If relief is not soon had with 82 put on 81, and repeat it if the skin will bear it, 208 and cooling drink; aperient medicine will only increase the mucous inflammation. Thin barley water very good and also one-third of a bottle of soda water with a spoonful of raspberry vinegar bottom of the glass; repeat this every four or five hours. 215—No. 46 repeated every day till relief is had. If the patient feels weak after the first one or two packs use 141 and 144 instead, and wrap legs in dry flannel, and feet also. We have proved these plans effectual in a severe case of ulcerated throat after scarlet fever recently.

VARICOSE VEINS.—This disease is very common, and often leads to the shortening of life by implication of parts of the body which is not understood by the individual, and not unfrequently by the medical attendant. The following extract from Cooper's Dictionary of Practical Surgery, fourth edition, fully illustrates the difficulty even the faculty find in tracing the consequences of varicose veins in various parts of the body, and as to the opinions the medical profession have of any cure: they say it is hopeless.

So far from cure being hopeless, we have never failed to restore the veins to their natural state, both in young and old persons, when they would give time for the treatment. One patient who came with varicose veins of long standing, a lady 72 years of age, was entirely cured; and in younger persons the cure is, of course, more easily effected. The period of treatment has varied from three months to six or eight, and the patient must be content to bear a good deal with crisis, as the renewal of the parts cannot be effected without a good deal of inconvenience; still the great importance even to life in having the varicose state of the veins removed is worth consideration. I shall first quote Cooper, showing the nature of the disease, and the very strikingly confused and wild attempts at alleviation; for cure he shows is not to be expected. One proposes cutting and emptying the gorged veins; another condemns this plan, and says, if emptied, they will soon be filled again, and be in a similar state. Some advise pressure; but another, following up the consequences of pressure on the veins in the extremities, considers, and very truly, that this unnatural obstruction will lead to mischief in more deep-seated veins and in other parts. After this extract, I shall give a short account of our mode of treatment.

"VARICOSE VEINS.—The term *varix*, is applied by surgeons to the permanently dilated state of a vein, attended with an accumulation of dark-coloured blood, the circulation of which is materially retarded in the affected vessel. When veins are varicose, they are not only dilated, they are also evidently elongated; for, besides being irregular, and in several places studded with knots, they make a variety of windings, and, coiling themselves, form actual tumours from the assemblage of their convolutions in one particular place. When the branches of a vein, thus dilated and elongated, are numerous, and confined to a certain part of the body, they constitute a very distinct swelling. Indeed, when the diseased vessels are situated near the integuments, the surgeon can feel, and even see, their tortuous course. These things, for instance, are remarkably obvious in the vena saphena interna, in which the affection is particularly common. This vessel may be observed to form in its course several of these swellings, in the interspaces of which it runs in a very serpentine manner.

"Varices are most commonly observed in the lower extremities, reaching sometimes even as far up as the abdomen. They have, however, been noticed in the upper extremities, and it is probable that the whole venous system is susceptible of the affection. As a well-informed writer observes:—'The great venous trunks sometimes become varicose. When the disease is situated near the heart, it is attended with pulsation, which renders it liable to be mistaken for aneurism. Morgagni observed, that the jugular veins were occasionally very much dilated, and possessed a pulsation. (*Letter* 8, *art.* 9, 10, 11.) He also relates a case, in which the vena azygos, for the length of a span, was so much dilated, that it might be compared with the vena cava. The patient died suddenly in consequence of the rupture of this varix into the right side of the chest. (*Letter* 26, *art.* 29.) A similar case is related by Portal, who also mentions an instance, in which the right subclavian vein was excessively dilated and burst into the chest. (*Cours d'Anatomie Médicale, tome* 3, *p.* 354, 373.) Mr. Cline described in his lectures the case of a woman, who had a large pulsating tumour in her neck, which burst and proved fatal by hemorrhage. A sac proceeded from the internal jugular vein; the carotid artery was lodged in a groove at the posterior part of this sac. The veins of the upper extremity very rarely become varicose. Excepting cases of aneurismal varix, the only instance of this disease, with which I am acquainted, is mentioned by Petit. (*Traité des Maladies, Chir. Tome* 2, *p.* 49.) In this case, a varix was situated at the bend of the arm: the patient was so fat, that no other vein could be found for the purpose of venesection, which operation Petit repeatedly performed by puncturing this varix. The superficial epigastric veins sometimes become varicose, but the most frequent seats of this disease are the venæ saphenæ, the spermatic, and hemorrhoidal veins.' (See *Hodgson's Treatise on the Diseases of Arteries and Veins*, p. 538, 539.) The deep-seated veins of the extremities seldom become varicose. The disease rarely occurs before the adult period of life, and its progress is extremely slow. It is very frequently remarked in pregnant women, who have passed a certain age; but it is particularly unusual for it to happen in young women, even during a series of repeated pregnancies. Surgeons have not hitherto made out any very precise information respecting the kinds of constitution which promote the occurrence of a varicose enlargement of the veins. Nor has it been well proved, that the disease often proceeds from swellings of the abdominal viscera, or any other species of tumour capable of mechanically obstructing the venous circulation.

"One or more veins of the same limb are at first most commonly affected with a slight degree of dilatation, without pain or any sensation of uneasiness. This beginning change ordinarily advances with great slowness; * the veins gradually become more and more distended, lengthened, coiled up, and tortuous. The patient then begins to complain of a sense of heaviness, numbness, and sometimes of very acute wandering pain, through the whole of the affected limb. In a more advanced stage, in proportion as the varices increase, and especially when the dilated veins actually form tumours, the limb swells, and becomes more or less œdematous according to the extent of the disease, and the time which it has existed. Delpech thinks, however, that the œdema in this case is not such as to justify the conclusion, that the increased size of the veins, and the way in which they distend the integuments, produce a mechanical interruption of the function of the absorbent system. For, says he, enormous varices are sometimes, though not often, met with, which are not attended with any swelling of the cellular substance; and cases are still more frequently seen, in which there is a considerable degree of œdema, while the varices are scarcely remarkable. When the latter have prevailed a long while, and made much progress, the coats of the affected veins are not unfrequently thickened, swelled, and indurated, forming a sort of half-canal, or solid tube. As Mr. Hodgson remarks, 'the blood occasionally deposits strings of coagulum in varicose veins: when this is the case, the vessel is incapable of being emptied by pressure, and is firm to the touch. The deposition does not in general fill the vessel, but, by diminishing its calibre, it retards the flow of blood, and causes the dilatation to increase in the inferior portion of the vein, and in the branches which open into it.' (*On the Diseases of Arteries and Veins*, p. 541.) This gentleman has seen four cases, in which the coagulum accumulated to such an extent, that the canals of the dilated vessels were obliterated, and a spontaneous cure was the consequence. The excessive distention of the coats of a superficial vein produces an inflammatory irritation, at first in the adjoining cellular membrane, and afterwards in the integuments. These organs become at first connected together by the adhesive inflammation; and, if the distention continue to operate, they may at length ulcerate, and burst, and hemorrhage be the consequence. In such cases, the effusion of blood is sometimes considerable; but, says Delpech, we have no example of its having proved dangerous. The syncope following it, or a moderate compression, suffices for its stoppage. A more common occurrence than bleeding, is the coagulation of the blood in the cavity of a varicose vein. The vessel then becomes hard and incompressible, and it loses that elastic yielding softness, which renders it capable of being diminished by gentle pressure. If the parts be already inflamed, Delpech conceives, that the clot in the diseased vein may act as an extraneous body, and bring on ulceration, by the effects of which it is at last brought into view. In this sort of case, it is extremely uncommon for hemorrhage to occur; for, in general, the vessel is already obliterated by the preceding inflammation. But the ulcer itself is very difficult to heal, and may be kept up a long while by the œdematous swelling of the limb. Varices, or rather the œdema which is the consequence of them, have the same effect upon every other species of ulcer, and even upon the most simple solution of continuity. While the swelling of the limb cannot be dispersed; while the edges of a solution of continuity are kept asunder by the tense state of the skin; and while the divided parts are irritated by this painful tension; everything is unfavourable to cicatrization. Thus, we see the most simple wounds, which have been allowed to suppurate, and ulcers, which should have healed rapidly, continue uncured a great many years, merely because the limbs, on which they are situated, are affected with an œdematous swelling, the consequence of varices. Such is the condition of things in the case which has been improperly named the *varicose ulcer.* (*Delpech, précis des Maladies Chir. Tome 3, sect. 8, art. 3.*)

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* "Except in cases where it accompanies pregnancy, in which circumstance one or both the lower extremities, as early as the first months, are frequently seen covered with largely dilated veins, or even with tumours formed by an assemblage of varices."

"In the investigation of the causes of varices, it is usual to dwell very much upon the mechanical obstructions, which may affect the circulation of the blood in the veins. Surgeons have thought themselves justified in regarding this as the only cause, because a circular, moderate compression incontestably retards the course of the blood in these vessels, and produces a temporary dilatation of them. The opinion seems also to derive confirmation from the knotty appearance of varicose veins, a circumstance which has been accounted for by supposing, that the distention is greatest in the situation of the valves. Lastly, the idea is further supported by the well-known fact of the frequent occurrence of varices during the state of pregnancy. But it has not been remembered, that the use of garters, for example, is extremely common; yet varices of the legs are infinitely less frequent; that very large varices are met with in persons who have never employed any kind of ligatures, to which the origin of the complaint can be imputed; that when the dilatation of the veins extends to the thighs and parietes of the abdomen, no causes of this description even admit of suspicion; that varicose veins are observable round several kinds of tumours, especially scirrhi, when there is no possibility of pointing out any mechanical obstruction to the circulation of the blood; that varices sometimes make their appearance at the commencement of pregnancy, and long before the enlargement of the womb can impede the free return of the blood through the veins in the pelvis; that nothing is more unusual than a varicose dilatation of the veins of the lower extremities in consequence of swellings of the abdominal viscera; and, lastly, it has been forgotten, that the knots of the dilated veins are far too numerous to admit of being ascribed to the resistance of the valves. It cannot be denied, that pressure, applied in the track of the vessels, tends to promote their dilatation: but it can neither be considered as the only cause, nor as the principal one. The foregoing observations, made by Delpech, render it probable, that some unknown general cause is concerned in producing varices, the formation of which may also be facilitated by the impediments to the free return of the blood, occasioned by certain attitudes and particular articles of clothing. Mr. Hodgson conceives it probable, that, in some instances, the valves are ruptured, in consequence of muscular exertions or external violence, in which cases, the pressure of the column of blood is the first cause of the dilatation of the veins. Sometimes also the disease appears to arise from preternatural weakness in the coats of the veins, as in those instances in which, without any evident cause, it exists in various parts of the same person. (*Treatise on the Diseases of Arteries and Veins, p. 537.*) Experience proves, says Delpech, that there is no certain mode of curing *varices,* strictly so called, which he thinks cannot be wondered at, since the nature and causes of the disease are completely unknown. The same source of knowledge, however, also proves, that the increase in the dilatation of varicose veins may be retarded, and that the œdematous swelling, attendant on the complaint, may be beneficially opposed by methodical and permanent compression. When the whole of a limb, affected with varices, is subjected to this last mode of treatment, the dilated veins subside, the circulation is more regularly performed, and the œdema and pain cease. There is not, says Delpech, any better method of healing the solutions of continuity in the soft parts, produced, or kept up, by the varicose state of the limb, and its consequences. But, sometimes, as soon as the compression is discontinued, the varices make their appearance again, the pain recurs, the œdema returns, and the ulcers, which were healed, break out afresh. Inflammation of the integuments covering a varix, or varicose tumour, cannot invariably be prevented by compression; nor will this treatment always succeed even in removing the intolerable pain which sometimes attends numerous clusters of varicose veins. In the first case, rest and relaxing applications will often succeed; and in the second, the topical use of sedatives frequently gives relief. It has been proposed to puncture and empty varicose veins; but, if a temporary emptiness and relaxation of these vessels were to remove the pain for a time, things would fall into the old state again in the course of a few days. If the plan were adopted, it would be necessary to make a very free opening in the dilated vein, and extract the coagulum. The vessel would then need no ligature above and below the opening, for the slightest compression would afterwards stop the bleeding, and the vessel be obliterated by the subsequent inflammation.

We learn from Celsus, that the ancients were accustomed to remove varices by excision, or destroy them with the cautery. (*De Re Medicâ, lib. 7, cap. 3.*) When the vein was much convoluted, extirpation with the knife was preferred; but in other cases, the dilated vessel was exposed by an incision, and then cauterized. Petit, Boyer, and many British surgeons have also sometimes cut out clusters of varicose veins. Delpech remarks, that the extirpation of tumours, composed of numerous varices, has been practised, either for the purpose of removing the pain in the situation of the disease, or other inconveniences. This operation has been successfully performed; but it appears not to have constantly had the effect of preventing the formation of new varices, and it has sometimes proved tedious, difficult, and severely painful in its execution. In fact, an erroneous judgment must necessarily be formed of the extent of these swellings, when they are judged of only from the appearance which they present under the skin. Varices are not always confined to the superficial veins, and when they extend deeply, the operation must be ineffectual. The opinion of Delpech is, that it should never be undertaken, unless the disease be accompanied with perilous symptoms, or the patient nearly deprived of the use of his limb. It has been thought, that one of the established principles in the treatment of aneurisms might be advantageously extended to the cure of varicose veins. By tying the principal venous trunk above the point to which the varicose affection reaches, it is said, that the course of the blood in the morbid vessels may be totally stopped; the column of this fluid made to coagulate; and the consequent obliteration of the vessels themselves accomplished. The practice of tying veins for the cure of varices, appears to have been employed in the days of Paré and Dionis (*Cours d'Opérations de Chirurgie, p.* 610), who have accurately described the operation of tying and dividing the vein between the two ligatures. Sir Everard Home has related many cases of varicose veins in the legs, some of them accompanied with tedious ulcers, which, after the vena saphena major had been tied, as it passes over the inside of the knee, were readily healed, and the dilatation of the veins of the leg relieved. This practice has sometimes answered; but it has also had its failures. Amongst other evils, an inflammation of the tied vein has been observed, extending very far in the vessel, and succeeded by great constitutional disorder, symptoms very analogous to those of typhus fever, and death. In some of these cases, previously to their termination, abscesses form in the direction of the vessel below or above the ligature; in others, such collections of matter are not observed. (See *Travers on Wounds and Ligatures of Veins. Surgical Essays, Part* 1, *p.* 216, *and Oldknow, in Edinb. Med. and Surg. Jour. Vol.* 5. *R. Carmichael, in Trans. of the King's and Queen's College of Physicians, Vol.* 2, *p.* 345, *&c.*) Indeed, the dangers arising from an inflammation of the internal coat of the veins are now generally acknowledged, and every endeavour should be made to avoid them. A case which happened in Guy's Hospital, in 1816, fully proves them: the femoral vein happened to be pricked in an operation for aneurism, and a ligature was applied round the aperture. Inflammation of its internal coat took place, extending up into the vena cava, and the patient is supposed to have died of the indisposition resulting from it. (See *Travers's Surgical Essays, Part* 1, *p.* 222.)

"Hence arises one of the most weighty objections to the practice of tying the trunks of varicose veins, with the view of curing their morbid dilatation, and its effects upon the limb. As Mr. Brodie observes, it seems to be now established by the experience of modern surgeons that a mechanical injury, inflicted on the trunk of one of the larger veins, is liable to be followed by inflammation of its internal membrane, and a fever of a very serious nature; and the occasional occurrence of these symptoms, after the ligature, or even the simple division of the vena saphæna, has made surgeons less confident, than formerly, of the propriety of attempting such operations for the relief of a varicose state of the branches of that vessel in the leg. Certain reflections, however, induced Mr. Brodie to think, that the same ill effects would not follow a similar operation performed on the branches themselves. 'Where the whole of the veins of the leg are in a state of morbid dilatation, and the distress produced by the disease is not referred to any particular part, there seem to be no reasonable expectations of benefit, except from the uniform pressure of a well-applied bandage. But, not unfrequently, we find an ulcer, which is irritable, and difficult to heal on account of its connexion with some varicose vessels; or without being accompanied by an ulcer, there is a varix in one part of the leg, painful, and perhaps liable to bleed, while the veins in other parts are nearly in a natural state, or, at any rate, are not the source of particular uneasiness. In some of these cases, I formerly applied the caustic potash, so as to make a slough of the skin and veins beneath it; but I found the relief, which the patient experienced from the cure of the varix, to afford but an inadequate compensation for the pain to which he was subjected by the use of the caustic, and the inconvenience arising from the tedious healing of the ulcer which remained after the separation of the slough. In other cases, I made an incision with a scalpel through the varix and skin over it. This destroyed the varix as completely as it was destroyed by the caustic, and I found it to be preferable to the use of the caustic, as the operation occasioned less pain, and as, in consequence of there being no loss of substance, the wound was cicatrized in a much shorter space of time. I employed the operation, such as I have described it, with advantage in several instances; but, some months ago, I made an improvement in the method of performing it, by which it is much simplified; rendered less formidable not only in appearance, but also in reality; and followed by an equally certain but more speedy cure.

"It is evident (says Mr. Brodie), 'that the extensive division of the skin over a varix can be attended with no advantage. On the contrary, there must be a disadvantage in it, as a certain time will necessarily be required for the cicatrization of the external wound. The improvement, to which I allude, consists in this: the varicose vessels are completely divided, while the skin over them is preserved entire, with the exception of a moderate puncture, which is necessary for the introduction of the instrument with which the incision of the veins is effected. Thus the wound of the internal parts is placed under the most favourable circumstances for being healed, and the patient avoids the more tedious process which is necessary for the cicatrization of a wound in the skin above. For this operation, I have generally employed a narrow, sharp-pointed bistoury, slightly curved, with its cutting edge on the convex side. Having ascertained the precise situation of the vein, or cluster of veins, from which the distress of the patient appears principally to arise, I introduce the point of the bistoury through the skin on one side of the varix, and pass it on between the skin and the vein, with one of the flat surfaces turned forwards, and the other backwards, until it reaches the opposite side. I then turn the cutting edge of the bistoury backwards, and, in withdrawing the instrument, the division of the varix is effected. The patient experiences pain, which is occasionally severe, but subsides in the course of a short time. There is always hemorrhage, which would be often profuse if neglected, but which is readily stopped by a moderate pressure, made by means of a compress and bandage carefully applied.' Mr. Brodie particularly enjoins the necessity of keeping the patient quietly in bed for four or five days after the operation, and removing the bandage and first dressings with the utmost care and gentleness. He also cautions surgeons not to make the incision more deep than absolutely necessary. Inflammation of the coats of the veins has not occurred in any of the cases in which Mr. Brodie has adopted this method of treatment. This gentleman wishes it to be understood, however, that he does not recommend the practice indiscriminately, but with a due attention to the circumstances of each individual case. 'The cases, for which it is fitted, are not those in which the veins of the leg generally are varicose, or in which the patient has little or no inconvenience from the complaint; but those in which there is considerable pain referred to a particular varix; or in which hemorrhage is liable to take place from the giving way of the dilated vessels; or in which they occasion an irritable and obstinate varicose ulcer.' (See *Med. Chir. Trans. Vol. 7, p.* 195, *et seq.*) On the subject of cutting through veins affected with varix, it is proper to observe, that even this plan has been known to bring on severe and fatal symptoms. Cases, confirming this fact, are recorded in a valuable modern work, which should be in the hands of every practical surgeon. (See *Hodgson's Treatise on the Diseases of Arteries and Veins, p.* 555, *et seq.*) It is but justice to state, however, that, in these examples, Mr. Brodie's manner of doing the operation was not adopted. On the contrary, his method, as far as I have yet heard, receives very general approbation. Some cases and observations highly in favour of it are detailed by Mr. Carmichael. (See *Trans. of the King's and Queen's College of Physicians, Vol.* 2, *p.* 369, *&c.*)

"Cases of spontaneous varix in the veins of the arms are rarely observed. When these vessels become varicose, it is almost always in consequence of a communication being formed, in the operation of venesection, between the brachial artery and one of the veins at the bend of the arm. The superficial veins in this situation then become more or less dilated, by the impulse of the stream of arterial blood which is thrown into them. There is, however, a good deal of difference between these accidental varices, actually induced by a mechanical cause, and those which originate spontaneously, or from causes not very clearly understood. The former never acquire the size which the latter often attain; they never exceed a certain magnitude, whether pressure be employed or not; they never form tumours composed of an assemblage of varicose veins; they are never filled with tough coagula of blood; their coats are never thickened, nor constitute the solid half canal remarked in the other species of varices; the skin, which covers them, is not disposed to inflame and ulcerate; they are not subject to occasional hemorrhage; and the limb is not affected with any œdematous swelling. (*Delpech, Traité des Maladies Chir. t.* 3. *p.* 261.) These circumstances render it evident, that here all surgical interference would be unnecessary. See *Aneurism*, where the aneurismal varix is described; *Cirsocele*, where the varix of the spermatic cord is treated of; *Hemorrhoids*, where the diseased and enlarged veins of the rectum are considered; *Varicocele*, where those of the scrotum are noticed." — *Cooper's Dictionary of Practical Surgery.*

Those afflicted with varicose veins will do well to read the foregoing article carefully, and mark what the profession think of this disease, and the often serious results. I wish Cooper and his authorities had said more about the causes of varicose veins, and cautioned the healthy to avoid such a state, by attention to the natural laws of health. Farther on, I give an article from Hooper, on the Veins, from which a good idea may be formed of the consequences of obstructed venous circulation in the liver, and other parts where the venous or exhausted blood has to pass; and showing, too, that the arterial or nutritive blood, after it has descended to the extremities, by the powerful action of the arteries, is absorbed into another system of channels, called veins, to be returned upwards to the liver and to the lungs, to be purified—to have the useless matter separated and thrown off. The return, however, is not so easily accomplished, when, from weakness or derangement of the organs of circulation in the trunk of the body, the venous blood is not there freely passing, to allow the ascending blood to move on in its natural course. Our experience in these cases has shown us that a disordered state of the liver is the principal if not the sole cause of varicose veins in the legs, except in very delicate persons; and in the latter cases, which are rare, the disease has been brought on mostly by having to stand a good deal in the occupations of business. All troubled with varicose veins should avoid standing, as much as possible, until cured, and for some time after cure. As Hooper says, these veins are composed, like arteries, of three tunics or coats, but which are much more slender than in the arteries; yet, by their contractile power, they have to force the blood from the feet and legs upwards into the liver and lungs, through an extensive network of channels. The obstruction, as Cooper says, is not always externally; sometimes it is deep seated in the trunk, and causes internal tumours, and, indeed, is the most common cause of tumour; for when there is obstruction, there is soon adhesion and stoppage, and nature tries to remove the obstruction by tumour and abscess, and often succeeds in bringing the parts to a natural state again. The curative power inherent in the frame is of great force, and works in a wonderful manner for the preservation of life. Sea-bathing and plunge baths are a common cause of internal varicose veins, ending often in tumour and death. The weak veins have suddenly a large quantity of blood thrown upon them; they may be in a state, in some part of the body, not able to bear the pressure, or return the blood; or become unnaturally dilated, and so lay the foundation of disease, to be developed years after, and which is often too mysterious to be ascertained; but when we know what may be the consequence of an undue pressure upon weak organs, it is wisdom not to risk such possible evils.

HYDROPATHIC TREATMENT FOR VARICOSE VEINS.—Our first object is to restore the general circulation; and, in order to do this, we must begin with the stomach, liver, &c., giving general treatment for their healthy action. First morning (see bath list), No. 2, on rising;

second morning, Nos. 13 and 27; third morning, No. 32: then repeat, forenoon, first day, 42 with 1 or 27, or 47 with 1 or 27; second day, 48; third day, if person at all stout or of sluggish action, 60 with 1 or 27; afternoon, 50 and 159, or 50 and 144; No. 214, night and day, 208, 163½, 172. Whenever No. 214 is removed to foment or re-wet bandages, dry rub legs upwards, and never downwards. When crisis comes out on legs or body, moderate above, and do not let any cold water touch crisis; 142, 145, 147, and 148 will be applicable when crisis comes on. There is never any danger with crisis: a person will never take cold where the crisis is; nor is it at all possible for the crisis to go into erysipelas: the only effect of cold to the parts would be to stop the restoration. Our crisis never takes place, except from the raised powers of the nutritive organs, and, therefore, entirely differs from forced counter-irritation, in the form of blisters, setons, &c.: by these, the surgeon hopes to drain out the disease, but it is often a consideration with him whether the patient's constitution can stand this drain; for, if it is continued too long, inflammatory action ensues, simply from weakness, and, with the disease, the life of the body is drawn away. We must invigorate the powers of the stomach, the liver, &c., before we can get the least crisis; we can never get crisis so long as the appetite is bad, and the digestive organs inactive; and, with good action of these organs, a person can bear the discharge, and gain weight under the process. For some time after the cure of varicose veins in the legs, the person should wear dry flannel bandages, and avoid long walks or much standing, to give the renewed veins time to strengthen, as they have been made over again in the process.

DELIRIUM TREMENS.—We have had several severe cases of this kind, and have been entirely successful in the treatment of them, and in delivering the patients from the dreadful propensity to intoxicating drinks—the cause of the malady. Mild hydropathic treatment very soon tells beneficially in such cases, and, at the same time that it soothes and quiets the fever, produces a counter-stimulus by acting on the skin, and relieving the irritated nerves, and allaying thirst.

The medical practitioners are afraid of cutting off at once the patient's supply of stimulants, but we are not so; and, in every case, have withdrawn all strong drink from the first, and have only administered a little spirit of ammonia in water, and nothing stronger. Dr. Gully, of Malvern, it will be seen by the extracts in this book, is of the same opinion, as to the advisability and safety of withholding all stimulants at once.

The treatment must be very mild and delicate at first, on account of the brain irritation. We confine them to bed for some days, and irst in the morning give 26, and in forenoon use very gentle fomentations to the bowels 64, also lazy packs No. 50 on bath list.

Head baths, No. 131½, and napkin wrung out of cold water put round the head and worn night and day, No. 215, and often re-wetted. The treatment must be proportioned to the strength of the patient, who must not be left for a moment until better, as sudden fits of uncontrollable madness frequently come on. To have the arms and legs packed in strips of wet calico, with dry flannel over, if very irritable, and often renewed, will have a good effect. Mustard plasters may be applied to the soles of the feet a good deal, wearing the wet socks, with dry lambs' wool over, night and day. A hot fomenting pack to the legs, No. 143, for 1½ hour, occasionally, will be good. To sip cold water constantly; and the less solid food taken the better, until the stomach has got back its tone. I have had also several severe cases, from taking opium and laudanum, in which the bowels were so constipated that nothing but croton oil would produce a motion of the bowels, and then only once a fortnight. In every case we were entirely successful in restoring the patients to perfect health, and instrumental in delivering them from their baneful vice.

After the first few days or a week of the foregoing mild applications, we began with No. 2 on rising, No. 51 every other forenoon; other forenoons No. 44 and No. 69, followed by 123. In afternoon, No. 90 or 121; and soon as there is little more tone, No. 100 and 155 or 156, and 131 and 132. No. 72 should be used before drying, after morning and forenoon baths, and No. 132. Nos. 163½ and 172, 206. No. 48 will be necessary two or three times per week, as the liver is certain to be congested. No. 90 at bed-time, with 194.

DISEASE IN THE FRONTAL SINUS, CAUSING FETID DISCHARGE FROM THE NOSE, is often very distressing; sometimes decayed bone will come away with the matter. We have successfully treated several cases, which had resisted all other remedies, by the following simple plans. One case of years' standing was cured in two months, and is now, two years since, quite well. Twice a-day put feet in hot mustard and water, and at the same time use bath No. 136; use No. 92 night and morning for twenty minutes, and head wrapped as in No. 136 same time. The ordinary home treatment, dripping sheets, &c., to be practised in addition.

RELIEVING PAIN BY OPIATES.—I have frequently observed the effects of medical practitioners combating active disease and excruciating pain by giving repeated doses of morphia, which, they are perfectly well aware, can only stupify the nervous sensibility, but can have no possible restorative properties; nor do they expect any from their use. I have known cases kept under the influence of narcotics until death has released the patient, when, by our active foment packs and our wet compresses, &c. &c., I could have been perfectly certain of determining the inflammatory action to the surface of the body, and so effectually and naturally relieve the suffering organs. The medical practitioner thinks sleep must be had on any terms, therefore allays pain by opiates; but, in doing this, he sacrifices the only chance of recovery for a mere temporary alleviation. We never do this, but wait till natural sleep is obtained by our natural gentle means; and we have never had cause to regret not having taken other measures.

The use of opiates effectually prevents the frame rallying in many cases; and, for a temporary alleviation of pain, the life of the patient is sacrificed. There is no reason why opiates should cure, but there are very good reasons why they should and do lower the curative power of nature, and so prevent the rallying of the vital powers, which alone can give a chance of recovery. Where opiates are given, and the patient recovers, it is the triumph of the natural vitality over the opium, not the opiates over the disease.

Dislocation of the Knee-cap, or Patella.—A gentleman, age about twenty-eight, strong and healthy constitution, was nursing his child, and by some means gave his knee a wrench and displaced the cap bone. He applied to a surgeon, who replaced and bound up the part, applying stimulating lotions and other usual remedies; but the knee swelled to a large size, and all the means that the surgeon could bring to bear upon it were unavailing to reduce the effusion into the joint which had taken place. There was crepitus of the joint, and little hope was given of relief, but by making a stiff joint, or, possibly, amputation. We entirely removed the effusion and the crepitus, and cured the knee simply by our fomentation and bandages; bath list, No. 141, to the leg; also Nos. 143, 214, and 137, with treatment for the general health; dripping sheets, Nos. 38, 51, 59, 101, 163½, 172, 208.

Case of Congested Liver, long standing.—I have lately shown some cases of crisis to surgeons, and they have expressed their surprise at the powerful effects produced by simple water. One case, a gentleman, age about fifty, the right side very weak, the knee especially, and the whole side cold. This was caused by the obstructed venous circulation. For many years, this patient had been under Allopathic treatment without any material relief, and, latterly, was decidedly worse, which made him lose confidence in his doctor's prescriptions, and he came to me to try Hydropathy. By applications to the skin, we soon got perspiration; then by our fomentations to the liver and bowels, Nos. 48 and 49, and our wet bandages, we soon set the stomach, liver, and bowels to work healthily; and now our object was to correct morbid action in the liver and in the viscera, but not by purging the bowels. We got a good deal through the skin, but this was not sufficient to cleanse the system. Nature had pointed out the place for effectual relief in the lame leg. We followed her hint, by using Nos. 141, 143, 137, 140, and 214, which shortly brought out a crisis and laid the patient up in bed, with legs discharging fetid matter, apparently highly inflamed and swollen; appetite little, under this disturbance of the frame, and consequent apparent sinking. Our surgeon was alarmed with the case, and said, if it was his, he should have little hope of the man's life, and, moreover, would at once give generous diet and some stimulants.

I have named the case to illustrate the difference of our action. I replied, I was quite certain that the patient would not only survive, but would become entirely sound in every part of his frame. We let nature work, with a little assistance to cool any feverish feelings; stopped all animal food; gave only water or weak black tea to drink; and, when nature had had time to perform her work, the patient became perfectly and entirely well, and has enjoyed excellent health ever since,—now several years ago. I never knew this natural crisis do anything but good.

The many deaths of apparently stout persons from inflammation or fever is owing to the inefficacy of any allopathic means to throw off the mucous inflammation on to the non-vital part, or to the surface of the body. Purgatives and blisters only further lower the nervous vitality; and tonics only stimulate to cause loss of power by reaction. The mischief is sometimes warded off, but always at the expense of the constitution. The seeds of the disease can never be safely eradicated, but in nature's own way of expelling morbid matter or worn-out tissue, principally through the surface of the body, and by the renewed vitality of the blood-making organs, the stomach, &c., which, as I have before remarked, are, by the suicidal plans of the drug doctors, incapacitated from healthy action in the very first attempts at cure, by introducing matter obnoxious to them.

Case No. 1.—Gentleman, apparently stout, age 50, but from over-brainwork and severe family afflictions highly nervous, and sensitive to cold, even in summer;

ringing sound in the ears almost constant, head stuffed, and a fetid discharge from the nose; all owing to brain irritation, aggravated by the common fallacy of the necessity of keeping the bowels open. This keeping the bowels open is a fallacious doctrine, that lays the foundation of disease in thousands; and, from being one of the cardinal principles of the medical profession, it is not surprising the public are of the same opinion. If the bowels were of the same material as copper or lead pipes, there would be sound reasons for scouring them often; but as they have a mucous internal coating, to perform important offices in protecting the absorbents, blood-vessels, and nerves, it is very unadvisable to scour this away. I feel I cannot say too much to caution persons against using any aperients of any kind. We never use the slightest aperient of any nature, and never fail to get natural action of the bowels. Why do not the medical profession adopt similar plans? Ours are always successful, theirs never, in bringing on and establishing natural action. This patient only stayed a fortnight at my establishment; when he came, water at 80 degrees gave him a shock; he soon bore the water colder, and got a deal of important information for his future guidance in diet, clothing, and habits of life. He informs me he is recovering his former good health.

The following are the directions I gave him for home treatment:—On rising, 87, six minutes, covered with a blanket, then No. 6; get to cold as soon as you can. You will not be well until you can bear quite cold, and you will get to this by degrees; if you continue warm treatment entirely, you will not get better. Sponge head in cold water, No. 132. Noon, sitz 80 degrees to begin with, ten minutes, and get to cold; and after this No. 154, at first tepid, and after a while cold. If you had spinal rubbing while in sitz, all the better, for a few minutes. Keep the body covered with blankets, head rubbed as before, 132. No. 136 twice per day; 163½ and 172. Bed-time, No. 98 once a-week, and No. 99 once a-week; other nights, 87 ten minutes, and 132, 186, 164. Diet on our plans entirely, and no stimulants or coffee, and little flesh meat: nothing after six in the evening, however hungry or wanting you feel.

Case No. 2.—Hopeless of cure. Can prolong life, and give relief. Age 50, commercial traveller; drank and smoked hard; legs dropsical, hardened liver, severe bronchial affection; expectorates ropy matter, urine scanty; my surgeon says, effusion of water on the chest. Came in yesterday into lodgings; do not like to go on with the case.

Treatment.—On rising, first day, 6 to 7½, 22, and change bandages; second day, ditto; third day, ditto. Forenoon, first day, 11½ to 12½, 68 and 143; second day, 48 and 143; third day, 64 and 143. Afternoon, 50, no mustard; 180, 188, 208, 76, 214. In a week, a modified application of the above, as symptoms dictated, gave him great relief; his breathing, which was very laborious, was greatly relieved; the swelling in the legs much lessened: appetite good, and going on well; but very doubtful of recovery, even to any state of convalescence.

Case No. 3.—A gentleman, age about 30. From harassing cares, had got into the habit of taking spirits and, recently, opium, which prostrated his nervous system to such a degree as to make his tenure of life for a week very uncertain. The doctor's opiates could give neither ease nor sleep; and, in this alarming state, he was brought to my establishment late one night. I could not but feel alarmed for his life, and should have gladly given over the case to some other practitioner; that, however, was impossible; and I prescribed the following treatment, which, in a few days, had a marvellous good effect on the debilitated frame:—Keep in bed entirely undressed, wrapped in a small blanket, a mackintosh under the blanket; lay on a flannel foment pad, wrung out of hot water, from the kidneys downwards; and one on the front of the body, from the pit of the stomach downwards; wrap the blanket over (but not tight) the arms, down by the sides, under blanket, then the mackintosh sheet loosely over all; mustard plaster, 1½ inch, to soles of feet, fastened on with strips of dry calico; and a bottle of hot water near the feet, to keep up a nice warmth; wet head bandage, constantly renewed when warm. When the fomenting pads lose their heat, take them off; sponge the parts, or, if perspiration all over, sponge the whole person with tepid water; then repeat this process as long as the patient can lie comfortably, and relief is given. When the patient comes out of these fomentations, put on dry flannel and silk half chest compress, and a calico and oil silk body bandage, wrung out of tepid water; and flannel wrapper over the body bandage, re-wetted every three hours, and worn night and day; spinal spongio sprinkled with hot water; feet and hands must be always kept warm; one-third of a bottle of soda water, with a dessert spoonful of raspberry vinegar in bottom of glass, every four hours; grapes, if in season and good, and not acid, with a little bread; a little cold lean mutton, or fowl, or game. Take nothing hot; no tea; breakfast, one-third of a bottle of soda water, with a little raspberry vinegar in the bottom of the glass, and a little bread, and cold lean mutton, or fowl, or game; a little beef-tea at eleven o'clock, if relish for it; stewed pears, with a little bread and water, very good; ice cream is very good. Dinner and every meal same as above. If feeling of lowness, may occasionally give ten drops of ammonia in a wine glass of water; no stimulants whatever. Keep very quiet; recline on sofa, and hold a feather cushion or pillow to stomach, with wet head bandage on, often renewed; and keep feet and hands warm.

Case No. 4.—LOSS OF THE USE OF ONE ARM.—I have lately had in my free hospital a case of the loss of the use of one arm, from smoking tobacco. The man has returned home entirely restored, and, but for this treatment, he would have been a cripple for life. Neither the parish doctor nor the infirmary officers, who had the case, could give him any relief; nor were they likely to do so, because their treatment of such cases goes at once to lower the vitality of the very nerves that are already weakened from want of nutrition. Short steamers, Nos. 51 and 27 or 1, with 46, once a-week; Nos. 59, 27, once a-week, and No. 2 on rising, and after a short time colder treatment and bandaging the arm, was all we applied; 163½, 172, 207, and 214 to arm.

Case No. 5.—Age 35; for several years liver affection, then of the right lung, and general wasting. He gave up business, came to my establishment, and is progressing well, and gaining weight, under the following treatment, varied according to symptoms:—First morning, 71 and 8, feet on hot pad covered with blankets while having 71; second morning, 71 and 12; third, same: first forenoon, 70, 71, 107; second, 45, 71; third, 49, 71, 107; afternoon, 156, 181, 168, 207.

Case No. 6.—Age 22, EPILEPSY.—Under the following treatment he had only one attack, shortly after he came, and has had none since:—First morning, 101, 32; second, 101, 3; third, 101, 3: first forenoon, 36 slight; second, 111, 32; third, same: afternoon, 111, 132, 155, 186, 164, 172, 208.

Case No. 7.—A gentleman, age 26; been in hot climate, chest and lungs affected, and much wasted. The following treatment, varied according to circumstances, enabled him to resume his duties. Morning, 71, 25; forenoon, first day, 81; second, 72, 74; third, same; afternoon, 115, 179, 172; , 208, 207, 212; got to No. 8 and No. 2 after a fortnight.

Case No. 8.—A gentleman, age 28, slight, fair complexion, of highly nervous temperament; from the agitation of a lawsuit, broke down; stomach sympathising with the brain; constantly irritable, little sleep, and wasting flesh; countenance pale, and dark under the eyes; low vitality. Prescription in August:—Waking, have a cup of weak black tea, with a little toast in it, then have 130 and 156 before breakfast; for breakfast take a little cold mutton, all lean, and well masticate it, with white bread, and a glass of cold water taken by sips; at 11.30, a cup of beef-tea, lukewarm, no bread, and then take 130 and 49, keeping head very high, and narrow mustard poultices to feet; need not entirely undress; dinner, same as breakfast, varied with cold chicken, rabbit, or game, boiled sole, or fresh-water fish, cold water to drink by sips; four o'clock, a bit of dry white bread, and glass of water by sips, and afterwards [illegible] 130 and 25; tea time, 6 o'clock, take as ordered for breakfast; bed-time, a cup-full of lukewarm arrow root or sago and 130, 156, 194. Wear wet head bandage all night, re-wetting it when awake; body bandage 169 and 190, in daytime; and in night, 172, and no spinal. Avoid all violent exercise, and rest on sofa a good deal: no reading or writing, or excitement of brain in any way.

Case No. 9.—Gentleman, age 26; scorbutic eruption over good deal of body; tried many remedies in vain. On rising, first day, 39 and 28; second, 35; third, No. 2. Forenoon, first day, 55; second, 59 and 28; third, 39. Afternoon, 87, 6. He rapidly improved: cold treatment retards recovery.

Case No. 10.—Gentleman, age 50, very stout, moderate in habits; suffers from determination of blood to the head. On rising, 22, standing on hot pad; forenoon, 104; afternoon, ditto.

Case No. 11.—Minister, age 30; liver and lungs affected, slight spitting of blood. On rising, 8, dry pad to chest; first forenoon, 64 and 24; second, 24 and 156; alternate afternoons, 86, five minutes, and hot mustard foot bath, 217, 177, 175, 211, 198.

Case No. 12.—Gentleman, 38, rather stout; slight bronchial affection; smoked a good deal; liver slightly affected. On rising, 52; second day, 2; third, ditto. Forenoon, first day, 2; second day, 38 and 10; third, 2. Afternoon, 91, 163, 177, 210, 207, 198. Soon restored.

Case No. 13.—Gentleman, age 30, rather slight; nervous dyspepsia from over-mental work; creeping sensations in spine; eyes bloodshot. On rising, 132 and 123. First forenoon, 101, 132, and 155; second, 115 and 155. Afternoon, 144, with 215, and after, 132. Bed-time, 92; if feet not warm in bed, put on wet and dry socks, 76, and recline on sofa with feet up a good deal of the day; the less exercise the better; 215 all day.

Case No. 14. — Age 26, rather slight; nervous dyspepsia; overworked, mentally and physically. On rising, 131 and 156; forenoon, rub spine with dry mustard and hand one minute, then 126; afternoon, 130 and 156, single dry flannel body bandage, and 188. After a time, a little more active treatment, but carefully so, as such cases get well with slight treatment sooner than colder.

Case No. 15.—Heart case. On rising, 22; forenoon, 131; afternoon, 143, taking first, 131; bed-time, 92, ten minutes, sitting longer each time till twenty minutes is reached.

Case No. 16.—General nervous case, almost amounting to spurious palsy. On rising, 113, cold, as soon as can bear it; forenoon, 90, alternate with 115; afternoon, 131 and 156; bed-time, 194 and 193; and, in the course of the day, 199, 200, 163, 187. After a good crisis, passed from the above treatment to the following:—On rising, 125, 132, and 154; afternoon as forenoon, and 199 and 200.

Case No. 17.—Age 22; last stage of consumption. Gave him great relief, and prolonged life. On rising, on coming, have 88; forenoon, first day, 22; second, 22; third, 68; afternoon, 90; bed-time, 88, 76, 206, 207, and 179.

Case No. 18.—A gentleman, age about 55, wrote to me in April, from a town eighty miles off, saying he had inflammation of the lungs, and wished me to be ready with a surgeon on his arrival at my Establishment, to treat his case, feeling himself, he said, in imminent danger. When he arrived, we found it a case of severe bronchial affection, with spasms that almost closed the throat. I immediately ordered a fomentation (pads and can) to the chest and round the throat, as he was reclining on a packing bed, and the legs up to the calves in hot mustard and water; after this fomentation had been on one hour, wiped the parts with a towel wrung out of tepid water, then rubbed the parts dry, and laid on a strong mustard poultice round the throat, top of the spine and chest, as long as it could possibly be borne; then dry chest compress and throat bandage. This was six p.m.: at ten o'clock, a hot mustard leg bath, wet throat pack, and spongiopiline, chest compress with collar wetted with warm water, and wet flannel and body bandage, warmed the bed, and retired to rest. In the morning, hot soap-

ing and tepid sponge; forenoon, eight minutes vapour, and sheet 70 deg., sitz
bath 80 deg., ten minutes feet in hot water. This counter-irritant treatment
and determination of blood to the surface of the body, by fomentations and
vapours, with total abstinence from animal food, soon relieved the patient, and in
a short time brought him to his former state of health, to his great delight; and
he had the advantage of not having his system saturated with calomel, not to be
got rid of often for years.

RELIEF IN A DYING CASE.—An old man, named Froggatt, Matlock
Bank, sent for me last week: I found him dying in great agony, and calling upon
God to take him out of his misery. Decay of the vital organs had come on
gradually from old age, and from having in former years smoked tobacco and
taken stimulants. I saw that by our plans relief could be given. I ordered a
bath-man to go with a pair of fomenting pads and a fomenting can, and some
sal-volatile, or spirits of ammonia. The man was fomented, as No. 64, gently for
one hour, mustard plasters to his feet, and then feet and legs wrapped in flan-
nel; after this a spongio piline full-size chest compress was put on, sprinkled
with hot water. The fomentation gave immediate relief and produced sleep,
and the man had no more pain while he lived, which was several days after. A
little ammonia was given in water, and only water to drink.

- CAUTION TO THE DELICATE AND THOSE IN ADVANCED
LIFE.—It should always be borne in mind in the application of Hydropathy to
the frame, that there is in every frame a certain amount of vital heat; some
have a large amount, and can bear great changes without injury; others have
less, and invalids have of course always a low amount of the vis vitæ, or power
of life. This little may be washed out altogether, either by too great an amount
of cold treatment extinguishing the vital heat, or by too much hot treatment
relaxing the frame by over-stimulating in another form; it is not the water that
cures, but its beneficial effect in gently stimulating by tepid or cold, and by
soothing with warm: but nature neither must nor will be forced. The amount
of life or vitality in the brain, considered in the changes which take place in a
few hours, must be the guide for a judicious, safe, and effective application of
this powerful agent. A lady, about sixty-five years of age, came in April, having
practised something of the cold water treatment in the winter, and was sur-
prised her breathing was becoming worse. I name this to caution such cases
from using cold water in the winter, where there is low power of reaction.
Bed-rooms are often cold in winter, and especially of a winter's morning, and
exposure in either sponging the body or the chest, when the weather is cold, is
certain to cause congestion in elderly or delicate subjects; it is better in such
cases to have no such application until noon, and then be careful the body or the
chest is exposed to the air as little as possible. The silk and flannel wet chest
compress should be worn whenever and as long as there is any oppression on
he chest, and sometimes take a six minutes vapour, with tepid sheet or rubbing
fter, will give relief and not weaken.

WATER ON THE CHEST.—When effusion has taken place to
nuch extent, the patient never entirely recovers, and it is mostly
oon fatal. When slight, and in subjects not advanced in life, and
hen it has not been caused by excessive use of drugs or stimulants,
may sometimes be removed simply by our gentle applications to
e skin and the wet bandages, fomentations to the stomach, mustard
plications to the legs, and foments. If a good crisis can be got in
e non-vital parts, the legs, the effusion on the chest will some-
mes be withdrawn, and the patient recover; but, if any medical
eans are tried, recovery is hopeless, as the physic stops the action
the nutritive powers, by which alone the body can throw off

disease. It is indeed distressing to see our friends the victims of the superstitious belief in the efficacy of physic to cure ailments which it never cures, but mostly stays one disease to set up another. I have seen stout persons trusting to the doctor's drugs to enable them to live in defiance of nature's laws; the aperient and the lancet have warded off threatened attacks of apoplexy again and again. Often have I heard, "I am stout, I can stand reducing; I get a good clear out, and am well again;" but this clearing out ruins the vital powers of the body, sets up slow chronic mucous inflammation, and eventually so weakens the frame that acute inflammation of some vital organ takes place, and a quick dissolution is the consequence; or, in other cases of strong constitutional powers, water in the chest comes on; and then come the drugs to try to raise the vital powers for absorption, but the previous reducing processes long continued have cut the very ground from under the deluded patient, and he dies long before God intended, had God's laws been observed,—eating and drinking to live, and not living for the gratification of the appetite. What account will such persons have to give to their Creator of their stewardship? That the world thinks little or nothing of; but the fact remains, that God in his Word declares, "*he that soweth to his flesh shall of the flesh reap corruption.*"

IRRITATION OF THE ANUS OR SEAT.—This is often a very troublesome ailment. Sometimes it is caused by worms in the intestines; it is, however, a very common complaint without worms; in these cases, it proceeds from inflammation of the mucous membrane lining, and that inflammation from stomach derangement, the inflammatory action communicating from one part to another, as the mucous membrane lining the stomach and bowels is one continuous network. Abstinence from all stimulants and flesh meat, coffee, salt provisions, and the use of the sitz bath, 65 degrees, for fifteen minutes, two or three times per day, is the best for relief we have discovered. Aperient medicines will cause the irritation; and tight-fitting clothes to the part, sitting on sofas or soft chairs, causing an injurious degree of heat, and keeping in perspiration. Cane-bottom chairs are by far the best.

WEAKNESS OF THE BLADDER, or Stricture in the Urethra. —This elderly persons are often troubled with. The use of the wet body bandage and sitz bath, at 90 degrees, for twelve minutes, run down to 70 degrees for four minutes, is very beneficial, several times per day. I have a case now of a gentleman, rather stout, and otherwise healthy, age about 68; and the following is the prescription given:—On rising, 144 and 27; forenoon, first day, 42 and 1; second, 59 and 107; third, 36, on the bottom of the back and hips; afternoon, 107, 163, and 172. No. 98 is a very useful bath in many of these cases, and easily applied.

Case No. 19.—Liver disease, age 28; he had jaundice six months since; good deal reduced in strength; married a year ago. Before rising, 212, then 21; cover body while doing this as much as possible; forenoon, 90; afternoon, 50; evening, 130; bed-time, 93 and 194, 175, 163, 172. Diet:—breakfast, a little weak black tea, dry toast, or grapes and bread, and sip cold water; dinner, little cold lean mutton and bread, and cold sago mould, or rice creed in water; tea-time, as breakfast; supper, if any (*better without*), a little arrow root, or sago, taken lukewarm, 212.

Case No. 11. WHITLOWS.—A gentleman, age about 44, fair constitution, gradually got into a dyspeptic state from confinement to business; and as nature will try to throw off the internal mucous irritation on to some part of the body where the blood-making processes are not going on, a slight hurt of the hand determined the crisis to that part, and defied all attempts of his surgeon to cure it; the hand gradually got worse, and whitlows came, with severe inflammation. The patient then tried Hydropathy; but the application being cold, and more with a view to raise the vital powers by tonic treatment, that also failed to cure the arm and hand, although the general health was much improved, and the bowels acted without aperients, which had not been the case before. The consequence of raising the general health was seen in an attempt by nature to throw off inflammation through the leg by crisis; but when the hydropathic practitioner observed this, he was alarmed, telling the patient that he must endeavour to stop it, as he had quite as much as he could bear with the crisis in the hand and arm. The leg was kept cool, and all warm treatment avoided, and the crisis, which was appearing, kept back; the hand and arm became proportionably more inflamed and painful, and after being under cold water treatment from February to June, he came to me in a very suffering state; the hand and arm highly inflamed and painful, the hand red as fire, and not able to bear touching; his stomach and whole frame getting worse, as the constant pain irritated the nervous system. I immediately applied steaming to both hand, arm, and leg, packing the hand, baths 13 and 10, and 28, 46 once, and 38, 51, 59, 90, according as he had strength to bear them, 163½, 172, 208, 207. Crisis soon came on in the leg, and very soon began to relieve the arm and hand,—taking a share in the purification of the system. Nature prefers carrying off the inflammatory matter in the system at the farthest points from the trunk, and so we rarely have crisis in the arms, except there has been some recent or remote injury. The patient was now put under evaporation, No. 147, for both hand and arm; the hand constantly covered with a silk glove, never removed, and kept in the tepid water; and if, at any time, particularly painful, increase the temperature of the water to 90 degrees. No. 10 was now given, with 13 every other day, as he could not bear cold, on account of crisis; No. 107 forenoon and evening, and 39 twice a week. This treatment answered completely; the patient recovered appetite, and the bowels acted naturally, which they had not done previously.

Case No. 12.—A gentleman, aged twenty-seven, dyspeptic and affection of the liver six years, from close confinement in business; of spare form, and not naturally of robust constitution; for many years took medicine to correct acidity and give appetite, and to make the bowels act, until he was entirely unable to continue his business duties. Under the following simple treatment he soon had a good appetite, stomach comfortable, and bowels regular.

On rising, to have a cold towel rubbing half and half, that is, well rubbing dry and dressing the upper part of body before doing the lower part. Forenoon, to have the feet and hands in 100 deg. mustard and water; then to have the weak part between the shoulders covered with a mustard poultice, till red; then to have the hands and feet rubbed with cold water and hand till warm, then to dry-rub them. When he could not bear the mustard poultice on, then put on a dry heated pad, put all over the weak part till he could bear another. Afternoon, to have a cold towel rubbing as on rising. Every other day to omit this and have a mustard spinal slapping for five minutes, with feet on a hot pad, and holding warm pad to the bowels; and if the feet were cold, put them into 100 deg. mustard and water. At bed-time, to have the bowels well soaped with hot water, then wiped dry and rubbed well with cod liver oil and hand for two or three minutes. Keep reclining most of the day, in that position have a few gentle exercises (Ling's movements) twice a day. Sip cold water all day, and keep a hot fomenting can outside on the stomach whilst reclining, and put on a piece of new flannel twice round over the bowels, 163½.

Diet as follows:—A rasher of bacon and white bread, and cold water for breakfast. Eleven o'clock, a cup-full of beef-tea, and a little toast. Dinner, vegetables, fruit, and bread. Four o'clock, a raw egg beaten up with a little warm water and sugar. Tea as breakfast.

Case No. 13.—Studious habits and confinement brought on dyspepsia and general weak health; in this state had a blow on the foot, which became painful, swollen, and inflamed. The doctor's attention was concentrated on curing the foot, and every orthodox means was tried in the way of blistering, issues, and ointment, and calomel for the general health. All, however, was unavailing, and the not very agreeable prospect of amputation was anticipated.

The following simple means soon told on the whole frame, digestion became good, good blood was made, the foot soon threw off quantities of morbid matter—the result of the new blood expelling the diseased part, which there had previously been no vitality in the limb to effect, but which the soothing processes, and the roast mutton, the pudding and cream, &c., soon showed what nature could do with nutritious food, instead of physic and blisters. The ankle was weak, and took a lengthened period to restore from the outrages committed upon it by blistering, &c., but is now quite well.

On rising, a hot dripping sheet, then soap all over with pad; next take hot sheet again, and rub well. Then a large can of cold water poured down the spine, standing upon hot pad. Forenoon, chest and throat well rubbed with cold water and hand, and attend to "crisis" treatment for leg, then take cold running sitz for five minutes. Afternoon, hot pad to chest and stomach, then let branch douche fall upon spine two minutes, stand in hot water all the time. Keep dry rag on leg, and leave flannel off. If the leg becomes very hot and painful, then use 145 or 146, 163.

No. 14. CASE OF HEART IRRITATION.—A gentleman, age thirty-eight, rather stout, married, and engaged in professional pursuits; of a bilious habit; for some years, when younger, was careless or ignorant of the injurious effects of tobacco and stimulants. The pressure of his duties, as a solicitor, and the cares of a family began in a few years after marriage to tell upon his frame, although apparently robust. Was first recommended one nostrum, then another, one doctor condemning what the previous one had prescribed, all hap-hazard, and nothing but narcotics to soothe the nerves or allay the irritation of the heart. The irritation extended to the brain, so as often to incapacitate him from his duties; some drugs allayed the more distressing symptoms temporarily, and a seton set at the top of the spine relieved the head for a time, the surgeon telling the patient that after it had been there some time he should heal it and set one in the arm! A pretty prospect for the already abused frame. One eminent surgeon ordered him to plunge into a cold bath every morning, for six weeks, in winter. Another physician, Sir P. C. . . . , whom he consulted, said he could do nothing much worse; and for heart irritation, accompanied with a sense of weight and pain in the head, one would suppose nothing could be more likely to kill rather than cure. This gentleman came to me for advice, and, after ten days' treatment at our Establishment, the livid colour of his lips is gone; and an evident improvement in his whole system is already the result of the treatment named below. The body finds it has got into a course of treatment more in accordance with the laws of nutrition, and every day it is answering to the mild natural means used. He formerly had gastric fever, and a year afterwards rheumatic fever; the irritation of the heart is owing to the disease in the stomach. The advantage of our mode of treating rheumatic fever is, that it thoroughly discharges it from the system, and we never hear of heart affections after, nor lingering pains in the limbs. The patient has gone on improving in general health, and is now engaged in the duties of his profession.

Treatment in the above case, first week; it was then February, a severe frost and keen east wind. First morning, on rising, soaping sitz, at 90 deg. only, and sponge down with 70 deg., only a few spongefuls, standing on hot pad, and having a wet cap on the head. Second morning, sponge over at 70 deg., standing on hot pad. Third morning, ditto. Forenoon, every day, mustard plaster below the heart, not upon it, having previously fomented gently fifteen minutes, keeping the flannel low, and not on the heart; this could be done sitting in a chair, with the feet in 100 deg. mustard and water. After this, wiped with a cold dry cloth, gently, putting a piece of spongio over the heart, damped with hot water, and flannel end body bandage wrung out of warm water. Afternoon, a sitz 80 deg., for eight minutes, with the feet in 100 deg. mustard and water; wearing wet head bandage a good deal. The following was my prescription for the second week:—On rising, sit on a chair covered with a blanket, having the feet in 100 deg. mustard and water; holding a hot pad to the lower part of the bowels; the bath attendant to rub all over the person with dry mustard. Wearing a piece of spongio, sprinkled with hot water, over the heart, and a body bandage, with flannel end wrung out of warm water; if the spongio was not comfortable, to leave it off. Wear this bandage night and day. Forenoon, to have the feet in hot mustard and water, for only three minutes, then to put mustard plasters on the soles of the feet, and bandage them with dry calico, to keep the mustard plasters on; then to lie down and have a bump sheet towel doubled and wrung out of hot water, and laid on the bowels, from the pit of the stomach downwards, not to reach the heart. The blanket on which the patient lies, and which should be doubled, is now on one side to be brought over the wet cloth, and then to lay on the fomenting can filled with hot water, or if that be too heavy, only half fill it, then to bring over the other side of the blanket, and wrap the lower part of the person in the blanket and mackintosh; to lie in this twenty minutes, keeping the wet head-cap on, and sipping cold water. Afternoon, to rub the head with the hand and cold water, while the feet and hands are in hot mustard and water, for five minutes. Bed-time, as on rising, and also mustard plasters on the soles of the feet all night. Diet, cold mutton every other day, with dried bread crumbs and gravy, moderate quantity; no vegetables, but a little pudding; alternate days, vegetables, gravy, and pudding. Breakfast, cold water, bread, and rasher of bacon. Tea-time, bread and butter and cold water, and light-boiled egg. A raw egg, well beaten with a little warm water and sugar, immediately on getting out of bed. To have the rising treatment and the night treatment in the bed-room. Before the forenoon treatment, to have a small basin of beef tea, no bread to it; before the afternoon treatment, another egg, as on rising. To continue this, if it suits; taking nourishment often will prevent the necessity of taking more than a moderate quantity at meals. To recline on the sofa a good deal; to walk slowly, and not far. If the feet are cold when reclining, to have a hot bottle. It is very important to keep the extremities warm, and have woollen gloves all day in cold weather. Water to be sipped frequently, but never to take large draughts at once.

The following are copies of prescriptions this patient paid his guinea or half-guinea fee for. The physicians wisely put their prescriptions in Latin, or the patient would not have had much faith in some of them, which were evidently more to satisfy the patient that he had value for his fee, rather than any expectation he could have in their virtues:—

Diluted Sulphuric Acid, half an ounce, Syrup of Roses, one ounce and a half, Distilled Water, two ounces. Take one tea-spoonful three times a day in water.

Grey Powder, two grains, Extract of Gentian, sufficient quantity to form one pill. Make six. Take one every night.

Calomel and Powdered Antimonialis, each, two grains, Compound Extract of Colocynth, six grains. Mix in two pills. Decoction of Peruvian Bark, seven ounces, Tincture of ditto, one ounce, Carbonate of Soda, three drachms, Volatile Salts, half a drachm, Syrup of Orange Peel, quarter of an ounce. Two table-spoonfuls, with one of lime-juice, to be taken three times a day.

Volatile Salts, twenty grains, Tincture of Ginger and Tincture of Cardams, compound, each one ounce, Tincture of Gentian, compound, three-quarters of an ounce, Cinnamon Water, five ounces and a half. Take two table-spoonfuls three times a day.

Hydriodate of Potass, half a drachm, Liquor of Potass, two drachms and a-half Extract of Dandelion, one ounce, Tincture of Orange Peel, one ounce, Infusion of Gentian, sufficient to make half a pint of mixture. Take two table-spoonfuls three times a day.

Ammonio Sulphate of Copper, two grains, Bread Crumbs, sufficient to form twelve pills. Take one every day.

TIC DOLOREUX.—I have had a case of a very severe kind under treatment at my own house. The gentleman is in her Majesty's service, and returned from Bermuda six months before. He was invalided by the Medical Board for neuralgia, and came to England and passed the Medical Board at Chatham, who confirmed their decision. He then came to Matlock, all the time liable to paroxysms of pain, which had haunted him for the last twelve years; but the last year or two had become so frequent and severe as almost to deprive him of reason. He could seldom get an hour's sleep night or day, and never for the last five years without taking large doses of anodynes or stimulants. Had the greatest difficulty to take any solid food, and sometimes for days dared take nothing but liquids, from fear of the violent paroxysms of pain which the act of taking food brought on. He had heard of my practice, and called upon me; after some conversation on his case, I invited him to our house, thinking there might be a possibility of some relief, but without much hope. I put him on my dietary, and then commenced active treatment. Seven in the morning had a sitting bath ten minutes, then the shallow and small douche; then, before coming out of the bath, the large douche on the spine and shoulders, wearing body bandages night and day. About half-past nine walked to a spring about a mile off, where he took off his shoes and stockings and paddled in the stream to the ankles five minutes, and afterwards poured water on the head, and then returned and had a wet pack, varied by vapour bath or spirit lamp. The latter repeated several days together gave most relief. Four p.m. sitting bath and spinal rubbing fifteen minutes, varied by vapour bath or spirit lamp; being middle of summer, active treatment could be given. Six p.m. a head bath twenty minutes, sponging the forehead at the same time. Drank five tumblers of water per day by sips. Wore a towel dipped and wrung out of cold water during the night, and as much during the day as convenient. In ten days he slept well without once being disturbed with pain in the night, and in five weeks was entirely free from it altogether. Cold weather is by no means unsuitable, but the treatment has to be modified. My former patient is now in excellent health, perfectly free from the complaint, and will remain so, if he abstains from stimulants and tobacco.

DELICATE TREATMENT is of great importance to adopt in many cases, and for old chronic affections of the vital organs, as the liver, stomach, bowels, lungs, and kidneys As the most intelligent practitioners of medicine do not rely upon the amount of their prescriptions for cure, neither should persons get an idea that the constant application of water in the various excellent methods which have been discovered to be of so much use, is alone to be looked to for cure of disease. The inherent curative power of nature should always be taken into account, and all treatment made subservient to assisting, by the gentlest means, the natural efforts of self-cure. The practitioner should pay no regard to the opinion that may be formed of his knowledge of the curative art, when he recommends simple diet, entire rest, good air and proper clothing, if he has reason to believe that these alone are required. Cases are frequently coming under our notice that require little application at first of any of our bracing baths. One such, a gentleman, age twenty-eight, for many years dyspeptic, liver deranged, head uncomfortable, and very low vital power; the life would soon be washed out of such a patient by active treatment, or even what would be considered moderate treatment. For weeks all the water application he had was as follows, and he gradually gained strength for more active treatment:—

Case No. 15.—Under the following treatment he gained a stone in weight in three months, and gradually regained his appetite and strength, and was quite free from the constant gnawing feeling at the stomach and nausea.

On rising have a sitz 86 deg. for twenty minutes, sitting quite still a quarter of an hour, then soap the bowels gently, and sponge over the whole body in the same water. Forenoon, apply the spongio out of hot water to the bowels; before renewing it, rub gently three minutes with the hand, and 50 deg. water, the place where it has lain. Once in the forenoon keep the feet in a mustard and water bath to ankles, from 70 to 80 deg. temperature, for twenty minutes, moving them well all the time one against the other, and then have them well dry rubbed by attendant, with warm dry hand, till quite warm. Afternoon, have sitz as on rising. Bedtime, have a half-hour's fomentation with hot pad, and whilst in this keep sipping cold water; put a mustard poultice to the soles of the feet, and hot water to them. The reclining position should be the principal one all day, and keeping hot bottle to feet. If spasms are very bad, then have fomentation as at bedtime. The above treatment alternate days, with the following:—

Let the abdominal compress be re-wetted every hour, and gently rub the bowels with hand and tepid water for one minute before putting it on again. Sip water all day, 50 deg. Whenever the patient has had a restless bad night, then have half an hour's fomentation in the bedroom on rising; get into bed and lie still till dinner-time; and in afternoon take the foot bath, put mustard poultice on the part above the crisis where there is pain, and keep renewing it as often as it can be done without injuring the skin, then omit other and follow crisis treatment. On rising, have dripping sheet 76 deg. Forenoon, have a running sitz 80 deg., reduced to cold, rubbing the bowels whilst in, alternate with dripping sheets, 90 to 70 deg. Afternoon, have a dry rubbing over the whole body, having the feet in mustard and hot water during the rubbing. Bedtime, have quiet sitz, quarter of an hour, 90 deg., and soap well, then put on abdominal compress out of hot water, leave off meat and take cod liver oil every night, one tea-spoonful; or, on rising, have dripping sheet cold, standing on hot pad. Forenoon, have running sitz 90 deg., soap before going in, and lower it to cold, and time according to feelings. Afternoon, have a dripping sheet as on rising. Bedtime, a hot fomentation ten minutes.

Diet as follows: Breakfast, a very lightly boiled egg, and a little toast; tea only lukewarm, very weak, and pretty well of cream. Dinner, cold meat and bread, and a little farinaceous pudding. Tea, as breakfast.

Case No. 16.—CHRONIC DISEASE OF THE LUNGS, AND LIVER AFFECTION.—Gentleman, age fifty; much emaciated; lived hard. The following treatment was very successful:—On rising, 21 and 124, done according to 26; forenoon, 132 and 158, whilst reclining, with hot fomentation on the stomach; afternoon, 50, twenty minutes, and when nearly dressed, 107; bedtime, 73; before new flannel is put on, 179, 207, and 208.

Case No. 17.—PARALYSIS.—The following case consulted me, and I gave him the prescription following the note:—" It is thirteen weeks since (*very unlooked-for on my part, as I am a thin spare man*) I was seized with paralysis, from my hips downward; I could not make water; was obliged to send for a doctor, and had to use an instrument for six weeks; I do now without the instrument, but have no command over my water; the lower part of my bowels are also affected, so that I am obliged to take strong purgatives to get action of the bowels. At the first both my legs were without motion (*never without sensation*); now my right-side leg is useless, except a little from the hip; but on my left leg I can bear a little weight, and can move any part of it at will, although it is very much benumbed, and always feels—as is the case with my back—a sensation as if cold water was being poured on them. I am as well otherwise as I have been for years; I think I eat with a better appetite than I did before I was seized. I have for many years been at out-door work. *Home Treatment:*—On rising, No. 86, with spinal rubbing 3 minutes, then 1 or 10; forenoon, 115; and at five o'clock, 156 and 132; bedtime, two nights per week, have 92; other nights, 115, and No. 25 every day, or 24, 114, 112, or 114 good, and 51 twice per week. The 112 or 114, by a healthy person, very good; covering body with a blanket. No ale, wine, spirits, or tobacco; and little flesh meat, or rather none; 165, 156 once a day; 207, 215.

CASES.—*Walter Yates*, Holloway, about thirty-five years of age; last stage of typhus fever; given up by his medical attendant, when he began with Hydropathic treatment at his own house, had constant sickness and purging; in one week his appetite became good, and in a few weeks was restored to perfect health. *William Bunting*, Lea, had rheumatic fever in a severe form; all pain discharged in a few days, and in a fortnight came to the works; a second attack, from imprudent exposure too soon in cold weather, as soon cured, and has been since entirely free from rheumatism. *Mr. Ralph Smith's*, Crich, was a severe case of inflammation of the liver, for which he was under medical treatment, and confined to his bed; he began with Hydropathy on Sunday afternoon, on Monday forenoon left his bed, and was soon relieved entirely, and remains well. *William Aldritch*, discharged from Sheffield Infirmary, of chronic rheumatism in the back and legs, and unable to walk without a crutch and stick; in nine days returned to his work, and left his crutch as a memorial of his recovery. —— *Knowles*, of Hearthstone, Matlock, from rheumatic fever, unable to work for two years; was long under medical treatment, could get no relief; could not raise his hand to his head when he commenced with the treatment; in one week was restored, and has ever since been free from pain, and at work. *Thomas Hodgkinson*, Holloway, severe inflammation of the lungs, with pulse ninety to one hundred, and had severe stitches on drawing his breath; perfectly cured, and returned to work next day. *Thomas King*, Matlock Bank, pensioner, about fifty-five years of age; had a stroke which nearly deprived him of the use of his side, and could not move about without a crutch or stick, and then only a few yards; after a short application of the packs, douche, sitting baths, and cold water applications, he could walk any distance, and his bodily health is now quite restored. He has come over expressly to request me to state his case in this work, for the encouragement of others similarly afflicted; his gratitude is unbounded. I have had several such cases, and with all the treatment has been perfectly successful. *Phineas Davis*, Matlock Bank, with severe affection of the liver and chronic rheumatism, bent nearly double when he came to the hospital; had no natural sleep for nearly two years; liver and bowels, in fact, almost paralysed. In one week slept well, appetite good, and in a few weeks commenced work at my mills, and has ever since gone on well, and has never had any occasion for medicine.

A remarkable case has come under my treatment since the foregoing was written. —— *Mowbray*, of Lea, severe case of *lead cholic,* from working at lead smelting works. He was cured rapidly of a former attack at my hospital, and being unwilling to give trouble, he did not apply the second time. Hearing of the case, I sent a carriage for him; he was suffering greatly from constant and severe pain in the bowels, and had been so for several days; could not get the bowels to act. First he was put to bed, and the bowels fomented with hot water for half an hour, then put into a wet pack, and, after lying an hour, taken out and washed in a shallow bath with cold water, or dripping sheet. The pain still continuing, the whole process was again repeated. Pain in a great degree gone. Evening, sitting bath sixty degrees, ten minutes, body bandage double usual width, so as to cover both stomach and bowels, wetted and wrung out of cold water, and kept on night and day; before morning, bowels acted. Next morning, first a fomentation twenty minutes, and then wet pack, followed by cold shallow; in four hours. a hot bath, 100 degrees, fifteen minutes, then put into a cold shallow for one minute, and well rubbed, especially over the bowels, and some cold water poured down the back; replace the body bandages, wetted in cold water. Pain to-day entirely gone, bowels acted naturally twice, and only a feeling of soreness left from the hot fomentations. Next morning, cold wet pack, cold shallow after; at eleven, cold shallow without fomentations; three o'clock afternoon, a vapour bath and cold shallow; slept well, and next day well. The last attack but one, he was under medical treatment nine weeks.

RIBER HALL, THE PROPERTY AND RESIDENCE OF MR. GEORGE ALLEN; 600 FEET ABOVE THE LEVEL OF THE RIVER DERWENT.

The following, and all similar subjects in this work, except extracts, are written by Mrs. Smedley, who has the sole charge of all our female patients.

PREGNANCY AND DELIVERY.—The best treatment for the general health at this time is to have, on rising, a shallow bath from 86 degrees to cold, according to the strength of the patient. Ladies, sitz bath from three to ten minutes two or three times during the day also, varying from 86 degrees to cold, to suit the feelings; and a quick sponging over the whole body at bedtime. Also, wear the wet body bandage 163 regularly, or as much as can be done comfortably, being always careful to renew it with fresh water several times a day.

If, from delicacy of constitution, the whole of this treatment cannot be taken, then adopt part; and have 158, which will be very advantageous and refreshing. Also apply cold cloths to the thighs for five minutes at a time, putting dry flannel over them. Oftentimes packing the thighs with strips of calico, wrung out of cold water and covered with mackintosh and flannel, will be found very useful where there is great heat in the region of the womb; but a great deal depends, during the whole of pregnancy, upon the person taking great care in *diet*, taking water as the *only* liquid, and brown bread, vegetables, farinaceous puddings, and milk, for the principal food. Better without flesh meat. Immediately after delivery, put a broad calico body bandage on, wrung out of hot water, and put a dry flannel bandage over that. The calico bandage should be double thickness, two yards long, and about fourteen inches broad; wring out as much as will go round the body, and not more. This relieves the pains, and will cause the bowels to act; re-wet twice per day for a few days, and in changing it be careful to keep the air from the bowels. This body bandage will do wonders in soothing the nervous system, and prevent milk fever.

CASE OF PREGNANCY AND CONFINEMENT.—The treatment, according to preceding directions, was attended to during pregnancy, up to the day of confinement, when all went on well. Body bandage, according to list, No. 163, but well wrung out of hot water, was used to bind the body (*instead of usual wrappers*). This kept the body cool, and also much alleviated the tenderness. (*Flannel can be worn over this bandage, when not found warm enough.*) Cold wet head bandage was applied, frequently renewed, which prevented faintness of feeling; and the hands frequently washed with tepid water, which is reviving. When much flooding, then cold sponges frequently renewed to parts, and damp cold cloths to thighs. Night and morning, sponge the *whole body* over with tepid water, with as little fatigue to the person as possible, doing upper part first, as in No. 26 in list; and as soon as patient could be moved, which was in two days, gave a tepid two minutes' sitz in ladies' running sitz, made with *high legs*, so that the fatigue of stooping low might be avoided, always taking care that the head bandage was renewed before getting up, and also putting a small flannel pad in the bottom of the sitz bath. Repeated the above sitz night and morning, *after* the tepid sponging, till fifth day, when the patient was enabled to sit up in easy-chair, and took the sitz No. 106 two minutes every two hours, which soon enabled her to walk about with ease, and stopped all discharge. The breasts were carefully drawn, whenever swelled or uncomfortable. Manipulation, at first, to breasts also found very useful, it being the first child; but this latter method is seldom needed afterwards. Diet, gruel the first day, and then Scotch oatmeal porridge, beef-tea, and weak black tea, and bread and butter and stewed pears, or ripe grapes. The bowels were rather obstinate at first, but having been freely emptied through the pressure of labour pains, a week or ten days passed without any uncomfortable feeling, and then nature relieved herself. I mention this, as medical men are often so anxious to have the bowels moved, that the poor patient has to swallow castor oil for this purpose, which does sad mischief to the bowels, takes away the mother's appetite, and greatly disturbs the child, and tends to constipation afterwards, and in one case brought on piles. The child was *quickly* sponged with *warm* water night and morning, and a piece of new soft flannel worn regularly round the bowels, but not put on *tight, and nothing given but mother's milk.* In cases where there is no milk, then give food as directed on page 203. It is safer for children to wear caps the *first* month.

TREATMENT FOR LABOUR. — If any *contraction* or *spasm*, then immediately "*foment*" the part. If the whole body seems cramped, then have a gentle "*vapour*," according to bath list, No. 51 (I have given the vapour with great advantage). If any relief has not taken place in the bowels a short time before labour-pain commences, then take an enema of warm water, and afterwards sit in 86 sitz for a few minutes. If relief of water has been insufficient, then sit in 86 to 90 sitz, and be well rubbed over the bowels while in; but keep the blanket well over the body, to prevent cold. If the bowels are in pain, have them frequently rubbed with cold damp towels; but the rubbing should be as hard as can be borne. If any pain in the head, have the spine well rubbed with hand and cold water, and keep mustard poultices to feet: I have also given relief by applying laudanum cloths to soles of feet.

REMARKABLY SUCCESSFUL CASES OF CHILDBIRTH. —While I am writing this, I have the pleasure to record the entire success of our treatment to two ladies, who having, about eighteen months since, undergone most formidable and excruciating surgical operations in premature childbirth, which brought them to the brink of the grave,—one of them having the declared convictions of some of the Faculty of the highest standing in London, that a similar operation would be necessary in case of pregnancy,—under similar circumstances they placed themselves under our mild and simple treatment. They have been delivered of remarkably healthy children, at the natural period. The first was confined in the autumn last year, and, owing to the excellent state of health our natural restorative system placed the patient in, has become remarkably stout. She has christened the infant Hydrantha, or The Water Flower. She was, with her husband, at our establishment from April to December, 1857, and then left for London. where she was safely delivered of a son and heir early in 1858, the first living child the parents have had. These children will, I have no doubt, grow up strong and healthy, if kept on simple diet. They have not had a particle of any drug circulating in their blood before they were born, and, moreover, the parents were so thoroughly healthy by eight to nine months of mild treatment, and abstinence from all stimulants and physic, that they afford the purest nutriment to their offspring. Thousands of permanent invalids owe their miseries and their ill-developed frames to the nasty drugs imbibed into their system through their parents before they even saw light.

CASE OF CHILDBIRTH. *To the Editor of the Derby Telegraph.*—"Dear Sir,—Having seen in your paper, some time ago, an article on your visit to the Matlock Bank Hydropathic Establishment, and gathering from its tenour your appreciation of the treatment there practised, which you appear to have published for the benefit of those who may be disposed to become acquainted with the treatment, and have need of the blessings which, in judicious hands, in so many cases it has been the means of communicating,—having the same object myself in view, I am disposed to think you will favour me with the insertion of a few remarks (which I judge will be interesting and instructive to many) relative to an extreme case of dysentery, which, after other means had failed, was brought round by Hydropathy.

"My wife had been brought to bed about nine days when her nurse allowed her to go out of doors, where she took cold. The first unfavourable symptoms were cold shiverings, which were succeeded by diarrhœa. The Allopathic doctor who had been attending her was at once resorted to; medicines were administered, but appeared only to aggravate the malady, producing dysentery, and the irritation was so extreme that about every half-hour the bowels were opened. This continued for about four days. I next sought the aid of a Homœopathic physician, who, when he saw my wife, pronounced her case hopeless! said she could not be worse! I then asked him about the propriety of trying Hydropathy in its mild forms, but he thought it would be in vain. I happily knew to some extent the various applications used in this treatment, and their result upon the system, but in such a case, and under such circumstances, was afraid to try them, especially as I was left to my own resources to adopt the judicious means which in her case were manifestly needed. Having, however, commended my patient, as well as the means, to God, and sought his blessing, I fomented the bowels (which were racked with pain) for nearly an hour; after which I gave a pack, with sheet wrung out of warm water, for about forty minutes; after that a warm dripping sheet. She was then well dried, and got into bed as quickly as possible, and so covered as to produce comfortable heat. Shortly after this a body bandage was applied to the bowels: this was about mid-day. In the evening the foregoing process was repeated, keeping cold cloth to head while in pack, and hot water bottle to feet. The next day similar treatment was given, when an improvement was visible; the bowels easier, the pulse lower, and the whole system soothed. By this time the doctor called again, and was utterly amazed at the change—asked what I had done, and commended my perseverance in the use of such means. My wife's appetite was now returning, and the bowel irritation subsiding. Several other mild applications were used for the next two or three days, when she was quite convalescent; after which nothing more than the tepid sitz and body bandage were used, when in about seven or eight days I had a perfect cure. I shall withhold my name and address from this letter, but send you my card; and you are quite at liberty to give it to any one who may write to you for the same, and I would gladly communicate with them. Yours very respectfully,—A Convert to the Water Cure."

MILK FEVER.—We were called in to the case of the wife of a labourer, aged about twenty-four, who was in a raving state of madness from this complaint; it required several strong persons to prevent her injuring herself or them. During a rather lucid interval, a vapour bath was given, with legs in hot mustard bath, and cold cloth over the head, and a hot pad to stomach; some relief was instantly felt. After being in the vapour fifteen minutes, she was sponged over with sponge partly wrung out of water, nearly cold; a wet body bandage was put on, mustard plasters to the soles of the feet, cotton socks wrung out of tepid water, and dry woollen over, the legs and arms packed with strips of wet calico, with dry over, and dry flannel over all; in four hours this was repeated. She got some rest by having a hot fomenting can applied over her bowels. Next morning, wet packs half an hour, and again in the afternoon. This treatment repeated, she had no relapse from the first application, but soon got entirely well, and had abundance of milk. Hydropathic practice in these cases is unrivalled. We have heard of a similar case a short distance off, which was entirely lost by the medical attendants not being able to cause perspiration. Unfortunately for Allopathic practitioners, they have to begin by sickening the stomach with their drugs before they can get their compounds into the blood; and when the stomach will not act, they are fast, and the case is hopeless. By our instant application to the skin, with its seven or eight millions of pores, we purge the system, and not only do not sicken the stomach, but we draw away morbid matter from it, and relieve it. These vapour baths were given with merely a can of boiling water, and a hot brick put in, the patient sitting on a chair, enveloped in blankets, and the can put under the blankets.

Treatment when Monthly Periods are on.—Wear compresses dry; then, on third night, two minutes tepid quiet sitz in running sitz, and damp the compresses in warm water. Fourth day, morning, noon, afternoon, and night, a two minutes' tepid sitz, as above. Fifth day, a two minutes' cold sitz, as above, every two hours till well. If the above is not effective in stopping, then a general sitz to be used, dashing into it quite cold, then lay on bed, and be well rubbed back and front with cold wet towel three minutes.

LEUCORRHEA, or WHITES.—This prevalent and most enfeebling disease may be cured by the following plans being strictly and perseveringly followed, requiring so little trouble and time in their operations. The ladies' running sitz is the best for this purpose, but a large earthenware or tin pan or tub may be substituted. Put in about two quarts of cold water, and, without undressing, sit down in it for two minutes only, and repeat this every two hours, or as often as convenient. Less frequently will do, when the case is not a severe one. This simple treatment will also effectually check and cure excessive menstruation or flooding, and may be used without fear when it is on.

ON THE FOOD OF INFANTS, *by Mr. H. TURNER, Homœopathic Chemist, Manchester.* "An article on this subject, in the last number of the 'British Journal of Homœopathy,' has reminded me, that I ought to make public a method I discovered many years ago, of preparing what has been repeatedly mentioned as a desideratum, viz., *a food for infants, which shall contain all the constituents of the mother's milk in their proper proportions*, and which shall be at the same time cheaply and easily prepared.

"The best food for infants is undoubtedly that which nature herself provides, viz., the child's own mother's milk; but sometimes mothers have no milk, or not sufficient for the child's nourishment, and in some cases it is expedient for other reasons that she should not nurse. In such cases it is usual to seek for a wet-nurse, who generally turns out a nuisance in the house, barely endurable. If the nurse has lost *her own child* of nearly the same age as the one she is engaged to suckle, her health good, and all parties satisfied, then nothing can be said against the arrangement; but if her offspring is living, and if it has to be taken from her, and deprived of its own proper nourishment, an unnatural and cruel wrong is inflicted on the poor helpless and innocent sufferer; and if, as is often the case, the selected nurse is a mother but not a wife, the encouragement to immorality is so direct and positive, as to be shrunk from by all right-minded persons, and vice is rewarded with a good home, good living, and little or no work. In other cases the infant is 'dry nursed,' or 'brought up by the hand,' that is, if it should not happen to be killed by the process, as is too often the case, and then of course it is not 'brought up' at all.

"That improper food is the cause of much infant mortality there cannot be a doubt, and if there were, it would be removed by a Report* lately printed and circulated by Drs. Whitehead and Merei, giving the results of their most careful and painstaking investigations into the causes of mortality and diseases among children. This report shows that more than 50 per cent. of children in Manchester die before they reach the age of five years, and of these by far the greater part die during the first year, the deaths being in the following relation to ages:—

"Under 12 months, of 146 patients, 20 died, or 14 per cent. nearly.
"From 1 to 2 years, of 105 patients, 8 died, or 7½ per cent.
"From 2 to 3 years, of 65 patients, 4 died, or 6 per cent.
"From 3 to 4 years, of 53 patients, 2 died, or 4 per cent.
"Above the age of 4 years to the 13th, of 161 patients, no deaths had occurred.

"The same report shows that '70 per cent. of the deaths occurred from *abdominal diseases;* 72 per cent. were partly cases of deranged digestion, in most instances combined with diarrhœa, of either dietetic or atmospheric origin.' It also shows that the number of badly developed children amongst the 'hand-fed' was *six times as great* as amongst those fed with the milk of the breast alone. Here then we have an appalling amount of mortality, disease, and imperfect development, arising from errors in the diet of infants. The question is—*Can it be avoided?* And the reply—*It can.* How?

"If we examine the constituents of the human milk, and compare them with those of the cow, we shall find that they differ considerably. The following table shows the composition of different kinds of milk, as given by Henry and Chevalier.

Constituents.	Milk of the				
	Woman.	Cow.	Goat.	Ewe.	Ass.
Caseum.	1·52	4·18	4·02	4·50	1·82
Butter	3·55	3·13	3·32	4·20	0·11
Sugar of Milk . .	6·50	4·77	5·28	5·00	6·08
Various Salts. . .	0·45	0·60	0·58	0·68	0·34
Water	87·98	87·02	86·80	85·62	91·65
	100·00	100·00	100·00	100·00	100·00

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* CHILDREN'S DISEASES: First Report of the Clinical Hospital for Diseases of Children, Manchester; containing an account of the results of the first 520 patients treated by A. S. Merei, M.D., and J. Whitehead, M.D.

"From the above it will be seen that the milk of the cow differs from that of the woman, in this principally, that it contains less sugar of milk and more caseum. The excess of the latter may be got rid of by precipitating with rennet, but this is a very troublesome process, and is open to other objections which is not needful to notice, as I am about to suggest a much simpler method of accomplishing the end.

"It is obvious that by diluting the milk with water we can lessen the relative proportion of caseum, and by previously dissolving sugar of milk in boiling water in the proper proportions, and diluting fresh cow's milk with it, we accomplish the two objects of lessening the relative quantity of caseum, and increasing the relative quantity of sugar of milk at the same time. The following formula will give the results as nearly as is necessary for practical purposes, and it has the sanction of experience:—

"Dissolve one ounce of sugar of milk in three-quarters of a pint of boiling water, and mix with an equal quantity of good fresh cow's milk; let the infant be fed with this from the feeding-bottle in the usual way. Always wash the bottle after feeding, and put the teat into cold water, and let it remain until wanted again.

"The water in which the sugar of milk is dissolved should be thoroughly boiled, to ensure its complete solution, and also to expel the air, which might cause flatulence.

"If the child requires to be sucked in the night, a little of the prepared milk may be warmed in a pipkin by means of a spirit lamp. The occasional addition of a little fresh cream to the above food will be beneficial to the child.

"I have had one of my own children fed as above from birth, and the results were all that could be wished. I have also recommended it in many other cases, and it has always been carried out with satisfaction.

"The SUGAR OF MILK mentioned above can be procured from any of the Homœopathic Chemists."

"THE WATER-CURE IN PREGNANCY AND CHILDBIRTH. BY JOEL SHEW, M.D., NEW YORK. (*Skeel, Pinner's Hall Court, Old Broad-street, London.*) Pregnancy is always attended with more or less excitement of the system, an excitement which bears some resemblance to a state of fever. There is also a greater proneness to fevers, even from slight causes, now than at other times. Hence the necessity of avoiding, as far as possible, all such causes; and hence also the necessity of exercising the greatest care, in regard to diet and drinks. Too much food, and that which is too exciting, will cause more harm in pregnancy than at other times, from the greater tendency to fever. The common belief among women is, that more food is needed during pregnancy than at other times, because the food goes to furnish nourishment for two instead of one, that is, for the mother and the child within her. 'It is therefore,' says Dr. Dewees, 'constantly recommended to eat and drink heartily; and this she too often does, until the system is goaded to fever; and sometimes to more sudden and greater evils, as convulsions or apoplexy.'

"If, instead of full diet, women in pregnancy will but try the plan of eating less food, even of becoming very abstemious, they will most assuredly find that they get along better, suffer less from plethora or fulness, and enjoy greater comfort of body in every respect.

"There is a mechanical reason—one which females themselves can best understand—why less food should be taken during pregnancy than at other times; the abdomen is more full at this period; much more so toward the end of pregnancy. Hence it is that at this time a full meal will cause a greater sense of fulness, and in every respect a greater degree of discomfort, than when pregnancy does not exist.

"Heartburn is not unfrequently one of the first unpleasant symptoms that women experience after becoming pregnant. This sometimes becomes very [illegible], and difficult to manage according to the ordinary modes. 'It is generally,' says Dr. Dewees, 'very distressing and very difficult to subdue.' He had known large and repeated doses of the alkalies given with scarcely any temporary alleviation, and much less, permanent benefit.

"The great cause of heart-burn in pregnancy, as well as in other cases, is acidity of the stomach; and acidity of the stomach comes from improper food. Very seldom, indeed, can a pregnant woman be troubled with heart-burn, acidity of the stomach, or vomiting, if the dietetic and other habits be regulated according to principle. Pregnant women, in this country of abundance, generally eat a great deal too much food. They have also too little exercise in the open air. Some, indeed, have too much exercise, as in doing household work; but more are injured by doing too little than too much. But in this country ninety-nine of the one hundred *eat too much food while in the pregnant state.*

"To cure the heart-burn, let the woman, when she first experiences it, at once desist in the quantity of food. If she rises in the morning and finds the symptom upon her, she may be certain that digestion has gone on badly the day previous, and that the stomach contains portions of the undigested aliment which has passed into the acetous fermentation, and thus causing the difficulty she experiences. What is to be done in such a case? Will the introduction of another portion of food into the already disordered stomach make matters any the better? Certainly not, except for a short time. When the stomach is goaded on by a new meal, the individual may feel the better for half an hour; but, other things being equal, it in the end only makes the matter worse. Fasting a meal or two, with water-drinking for its tonic effect, is the best possible means. The stomach thus has time to regain its vigour, and food taken in moderation, subsequently, will then be found to agree perfectly well. It will here also surprise any one to learn how small an amount of food is really necessary, with water-drinking, to sustain the strength.

"Nausea and vomiting are frequent occurrences during the early months of pregnancy. Various conjectures have been put forth concerning the causes of these symptoms, one of which is, that they act in preventing plethora, or too great fulness of the system. But it may be asked, if this is so, why do they not continue in the later months of gestation, when plethora is still more prejudicial than in the early months? The plain truth in the matter appears to be this: those persons who are feeble and have depraved health—those who sleep upon feather beds, who are inactive in their habits, who drink tea and coffee, and subsist on fine and concentrated food, such as is almost certain to cause indigestion, and to keep up a state of constipated bowels—are by far the most apt to suffer from nausea and vomiting in pregnancy. Those who have good constitutions, and live consistently in all respects—practising daily bathing, water-drinking, &c.—are troubled but very little with these symptoms.

"During the early months of pregnancy, there appears to be a greater tendency to constipation than in the latter months, a fact which is the direct reverse of what we should expect from *a priori* reasoning. But during the whole period, constipation is more apt to occur than at other times.

"Constipation is exceedingly common among all classes of females in this country at the present day. The American people have such a predilection for fine food, it is a hard matter to make any great change in this respect. It is in the dietetic habits more than in any other that we are to look for the causes of this evil.

"Superfine flour is, I hold, the greatest of all causes of constipation. I know tea and coffee, which are astringent articles, have a tendency to cause this condition of the bowels; and the same may be said of idleness and physical inactivity; but too great richness in food—and superfine flour is the article most consumed in this—is the great cause of constipation. Our country abounds with it everywhere. By our numerous railroads and canals, superfine flour is transported from one end of the country to the other, so that in large districts where formerly the people were in the habit of eating coarse bread, as of rye and Indian, and were consequently more healthy, they now use the superfine. Even a beggar would sneer at one for offering him brown bread.

"Constipation, common as it is everywhere among females, is still more common in pregnancy. This arises, first, from the pressure of the enlarged womb upon the lower bowel; and second, there being a new action set up in the uterus, there is, as a natural consequence, a greater tendency to torpor in the bowels. But the principal cause is that of the pressure.

"This condition of the bowels induces of itself numerous other difficulties. Headache is often brought on solely by constipation; that is, in many cases we remove the constipation, and the headache is sure to leave with it. Sickness of the stomach and vomiting are always aggravated, and often caused by it. The same also may be said of heart-burn, palpitation, and fainting. Sleeplessness, and in fact almost every one of the disorders of pregnancy, may be said to be either caused directly or greatly aggravated by constipation of the bowels. Even miscarriage has been known to be induced by it.

"Some persons have gone almost an incredible length of time without any movement of the bowels. A whole week is not uncommon. Dr. Dewees mentions a case of fourteen days, and no doubt there have been those who have gone one to three whole weeks.

"What have we to do in order to cure constipation of the bowels? Does not every person of common sense understand at this day, that the more we dose the system for constipation the more we may? Let those answer who have tried these things. Always, other things being equal, the more we take drugs for constipation the worse it grows. We must therefore look to some other means of cure.

"We need here only mention, in general terms, that constipation in pregnancy is to be cured just the same as constipation to any other case. Brown bread, fruits, and vegetables, with a very moderate use of milk, if the patient desires it; regular exercise, the hip bath, wet girdle, injections of cold water, or tepid, if that is preferred—these are the means to be used. The brown wheat or rye mush will be found most excellent. No woman, if she can have brown bread, and occasionally an injection, need ever suffer from constipation of the bowels.

"Sometimes the reverse of constipation occurs during pregnancy; namely, diarrhœa. This also not unfrequently alternates with constipation. Constipation, however, is the most frequent system.

"Singular as it may appear, diarrhœa should be treated on the same general principles as constipation. Fortify and invigorate the general health, observing at the same time a correct general regimen, and either symptom disappears. In diarrhœa, the hip bath, often repeated, the wet girdle, and cold injections, taken as often as there is any disposition for the bowels to act, are effectual means. The diet should be regulated on the strictest principles. If a diarrhœa is very severe, entire abstinence from all nourishment, except water, for a day or two, is a very salutary remedy. Food should then be taken with the same precautions as in nausea and vomiting.

"*Pruritus pudendi*, or itching of the genital parts, becomes sometimes a most troublesome and distressing complaint in pregnancy; so troublesome, indeed, as utterly to set decency at defiance. Cases under the ordinary modes of treatment have been known to be so severe as to compel the lady to remain in her chamber for months.

"The causes of this affection cannot always be ascertained. A want of proper cleanliness is no doubt often one of the principal sources of it. But shallow hip baths of cold water from a well, persevered in, will be found sufficient in every case; use them every two hours, for two minutes at a time.

"Mastodynia, or pain in the breasts, is more common in the first pregnancy. Compression by clothing may cause the difficulty. Washing the parts with cold water, and wet bandages or cloths worn upon the parts, are the means to be used.

If the pain is of a spasmodic kind, it may be best, in some cases, to use warm fomentations.

"Incontinence of urine is quite apt to occur toward the end of pregnancy. It arises often from the pressure of the child upon the neck of the bladder. There is a notion with some of the 'old women,' that incontinence of urine is an indication of good labour. This difficulty cannot, of course, be altogether remedied; the cause cannot be removed. It may be lessened, however, by short and frequent hip baths, wet bandages, and cold bathing. Drinking soft water, instead of hard, will also be found to have a good effect in all difficulties of the bladder whatever.

"Blisters are always liable to bring trouble upon the urinary organs, but more particularly so in pregnancy. The system is then in a more excitable or impressible state. Strangury in pregnancy is a very distressing and untoward symptom when it follows the use of blisters. Dr. Dewees had known cases where entire retention of urine followed the use of blisters, so obstinate that it could only be relieved by the catheter; causing a distressing inclination and violence of effort only to be surpassed by labour itself.

"Retention may also come on from other causes. As to the treatment, it can be very seldom indeed necessary to resort to the use of the catheter for draining off the urine, if cold hip baths, cold foot baths, and even the cold general bath, if necessary, be sufficiently persevered in. Cold has a truly wonderful effect in causing the flow of urine.

"Cold bathing, for its tonic and constringing effect, has for centuries been recommended as a most valuable means for preventing abortion. In pregnancy, the same general principles should be observed in fortifying and invigorating the general health as at other times. No violence should be done to the system. A general bath in the morning, cool or cold, according to the individual's strength: a hip or sitz bath of five or ten minutes duration, two or three times a day, and an ablution with water, not too cold, on going to rest, will ordinarily be sufficient for the daily routine of treatment in those cases where there is tendency to abortion; such a course is, in fact, good at all times. The wet girdle, elsewhere explained, will often be of advantage; but to make it a tonic or strengthening application, it should always be under these circumstances, great care must be taken that it does not become too warm. This is very apt to be the case in warm weather. It must then be often changed and re-wet. If it becomes too hot, it weakens the system instead of strengthening it, thus tending to cause the very difficulty it is intended to prevent. 'Injecting cold water into the vagina, twice or thrice a day,' says Dr. Burns, in his work on midwifery, 'has often a good effect, at the same time that we continue the shower bath.' And this writer also observes, 'that when there is much aching pain in the back, it is of service to apply cloths to it, dipped in cold water: or gently to dash cold water on it, or employ a partial shower bath by means of a small watering-can.' Water, let it be remembered, is the greatest of all tonics to the living system.

"*Sleeping upon feather beds and in overheated rooms* has much to do in causing abortions. People ought never to sleep on a feather bed, unless, possibly, very old and feeble persons who have long been accustomed to them. In such cases it might not always be safe to make a change in cold weather suddenly. But for a pregnant woman to sleep on a feather bed is one of the worst of practices. And here also I must mention that feather pillows, as well as feather beds, do a great amount of harm. Even those who have emancipated themselves from the evils of feather beds usually retain the feather pillow. It is a wise old maxim, 'to keep the head cool.' The head has blood enough, more than any other part of the system, to keep it warm. No person, not even the youngest infant, should ever sleep on a bed or pillow made of feathers. The animal effluvia coming from them is bad, and the too great amount of heat retained about the surface debilitates the system in every respect.

"*The vegetable diet* was observed by the celebrated Dr. Cheyne, of England, to have a great influence in preventing abortions. Milk, however, was generally used, which is in some sense animal food. A total milk and seed diet, as Dr. Cheyne terms it, was a most excellent means of preventing infertility and abortion.

"*Hæmorrhage from the womb*, during the months of pregnancy, is not necessarily attended with abortion. Great care, however, should be exercised if hæmorrhage occur during this period, as there is then always great danger of losing the child.

"Abortion, as a general rule, is a more serious matter than birth at the full period. Hippocrates asserted, that a miscarriage is generally more dangerous than a labour at full term. The reason of this is, the first is an unnatural occurrence, the second natural. In many instances, however, the abortion itself is of far less consequence than the condition of the general health, which allows of such an occurrence. For the most part, it is only the feeble and debilitated that experience abortions.

"Women who miscarry once are much more apt to do so again. The body, like the mind, appears to have a great tendency to get into bad habits; and the older the habit, the worse it becomes, and the more difficult of control.

"It were better for very feeble persons not to place themselves in the way of becoming pregnant; certainly not, until the general health has been attended to. And it is a fortunate thing for society, that many feeble and diseased persons are wholly incapable of begetting offspring; otherwise the race would soon run out.

"More than one hundred years ago, the celebrated Dr. Cheyne remarked concerning abortion and its causes as follows:—'It is a vulgar error to confine tender-breeding women to their chambers, couches, or beds, during all the time of their pregnancy. This is one of the readiest ways to make them miscarry. It is like the common advice of some unskilful persons to such as have anasarcous or dropsical legs, namely, to keep them up in chairs on a level with their seats, which is the ready way to throw up the humours into their bowels and fix them there. The only solid and certain way to prevent miscarriage, is to pursue all those means and methods that are the likeliest to procure or promote good health, of which air and gentle exercise are two of the principal. All violence or excesses of every kind are to be carefully avoided by the parturient; but fresh air, gentle exercise, walking, being carried in a sedan or chaise on even ground, is as necessary as food or rest; and therefore is never to be omitted, when the season will permit, by delicate females.'

"When abortion is about to take place, the woman experiences usually for some time previously 'a sense of weight and weakness in the loins and region of the uterus, followed by stitches of pain shooting through the lower part of the abdomen, back, and thighs.' There may be also bearing-down pains in the bowels, and frequent desire to pass urine. In connexion with these symptoms—that is, at or about the same time—the discharge of blood commences. This is sometimes so sudden and rapid, that the strength becomes very soon exhausted to a great degree. If much blood passes, abortion is almost certain to take place.

"Bleeding, for its sedative, is often resorted to on these occasions. The application of cold, however, is the more effectual means when suitably made. Cold, as well as bleeding, is a sedative, and, besides, being as powerful as we choose to make it, has this great advantage over bleeding—it does not reduce the strength. It performs the effect without robbing the patient of that important agent, the blood.

"In any case of hæmorrhage from the womb, then, persons should, in the absence of a physician, at once resort to the application of cold. There is heat and feverishness in the system, be it remembered; under such circumstances it is impossible to 'take cold,' of which people are everywhere so much afraid.

Cold wet cloths, often changed, should be applied about the abdomen, upon the genital parts, thighs, &c. Use plenty of cloths, and even doubled sheets, dipped in the coldest water. A piece of ice, wrapped within a cloth, is also often put up the vagina for a little time, to produce a chilling effect. Until the bleeding stops, it is next thing to impossible to do any harm with cold. Cold injections to the bowels and vagina, and, when the patient is not too weak, the cold hip bath, are useful means. 'A rigid avoidance of everything stimulating; a cool-room; cool drinks; and light bed-clothes,' are recommended by Dr. Maunsel.

"After the bleeding has ceased, the patient should be allowed to rest, and she should be nursed in the most careful manner. For days and weeks, and, in some cases, for whole months, the greatest care must be exercised, lest a little overdoing, a little excitement, or some other untoward circumstance, may bring injury upon the patient.

"The following case of a clergyman's wife, in this city, was given by herself for the Water-Cure Journal, some months since:—

"'Mr. Editor—I feel that I am under obligations to you, and a duty I owe the public, if you think best, to make known the happy effects I received from following your directions, previous to, during, and after my accouchement last August. On Wednesday, the 23rd August, 1848, at half-past twelve, noon, I presented my husband with a fine boy, with comparatively little suffering. I had one of the best physicians with me, and although allopathic in practice, he did not interfere with your advice. After the birth of the child, I had wet towels applied around my hips, &c.; at two I partook of peaches and milk, with Graham bread; remained comfortable till six o'clock, when, with the assistance of my husband, being very weak, I got into a tub of water, and after being well bathed and rubbed, I found, on leaving my bath and investing myself with a wet girdle, that I could have walked across the room without assistance; but I merely walked to the bed, and soon sank into a sweet sleep, in which I remained until morning. The babe also slept all night without waking. The next morning, Thursday, the 24th, at six, I got up, took a bath, walked across the room to the rocking-chair, took my babe, and made him comfortable; for I thought I would not disturb him by dressing him. At twelve, twenty-four hours from the birth, I took another bath, and sat up till six, when I repeated the bath, and went to bed, and as I had eaten a very hearty dinner, I thought it best to deprive myself of supper. Friday morning, the 25th, I again took my bath early, had the windows of my rooms thrown open, and walked several times through them, and felt as well as ever, excepting a soreness across me, and weakness; had my bath at twelve; after dinner had some severe after-pains, but by constantly wearing the wet girdle, they were much alleviated, and soon ceased entirely.

"'Saturday morning, the 26th, I again took the bath early, and exercised about the room; and after breakfast, which consisted of tomatoes, boiled corn, and potatoes, I washed and dressed my infant without feeling the least fatigue. I sat up most of this day—ate beans and corn for dinner. Sunday, 27, I was so well that all the family went to church, leaving me with the babe and my little boy, five years old.

"'When my child was a week old, I could go about the house, walk in the yard, and had read several volumes. I continued to take my baths and wear the wet girdle for six weeks, when I left them off on account of a journey I made to visit my parents in a distant city. I have delayed writing you to this time to see if we (the babe and myself) should continue in our favoured state, and I have the pleasure of informing you, that my health still remains good, and our babe is as well and fine as the fondest mother could wish.

"'Now when we take into consideration that we had no nurse, nor had I to call on my girl for assistance during the whole of my confinement, I think we may well ask ourselves the question, How has it happened, that what has been considered heretofore a serious and even dangerous event in the mother's life should have all its terrors, pains, and sickness, often attended with fatal fevers, taken away, and reduced to a comparatively trifling affair? I answer, and my experience warrants me in answering (for I have had children before), *By the use of cold water*, applied in a judicious manner; a remedy equally accessible to the poor as well as to the rich—simple, vivifying, and effectual; and I hope and trust you will succeed in your undertaking, and have the happiness of conferring the same benefit on thousands of trembling, anxious mothers, that you have on your greatly obliged friend,

SARAH B.'

"'Dr. W. and wife arrived at our establishment, she expecting to be confined in two or three weeks. She could walk but little; going a short distance fatigued her much. Doctor Webster applied the water faithfully and exclusively during the attack of the erysipelas mentioned, so that she was gaining fast when she came. A worthy and so-called intelligent cousin of hers, in Providence, said to Dr. Webster, the night of leaving, "*You are killing your wife*," and thought, no doubt, she would never return alive.

"'TREATMENT AT OYSTER BAY.—Rubbing sheet, of rain-water temperature, say about 70 degrees Fah., on rising in the morning, usually at about four o'clock. Then she walked in the open air, wet or dry, when it did not actually rain in torrents. She drank also some water always after the bath, during the walks, and after returning to her room. This exercise in the open air, practised moderately at first, together with the baths, proved a great tonic to the system. She walked at different times of the day, when the sun was not too hot, mostly mornings and evenings. In the hot part of the forenoon she rested on the bed, and generally obtained some good sleep. This, however, she could not have done had not the clothing been removed, as at going to rest at night. Persons wonder how it is that when they sleep in the daytime they wake up so feverish and unrefreshed. Keeping the clothing on never does well in sleep.

"'*Forenoon.*—After resting, and from half an hour to an hour before dinner, the rubbing sheet was applied as in the morning. Feet were washed at the same time. She, in fact, always stood in a tub having water in it two or three inches deep, of rain-water temperature. She was to wash the feet at any time when they felt hot and disagreeable; so also the hands and face.

"'*Afternoon.*—The rubbing sheet toward supper-time, as before dinner. Was to keep up in the afternoon, and avoid sleeping, so that the rest at night would not be disturbed.

"'*Evening.*—At about nine o'clock, and on going to rest, the rubbing sheet and foot-washing as before. Hip baths, one or two inches deep, were to be taken at any time when there were itchings, heat, etc., causing a need for them.

"'*Food.*—Vegetable food and fruits, with a moderate portion of good milk, constituted her diet. No other drink than water was used. The meals were taken betwixt six and seven A.M., twelve M., and six P.M. There was no eating between times, as people are wont to do; appetite and enjoyment of food were remarkably good; no meals omitted.

"'REMARKS ON THE RUBBING SHEET.—This was applied with good, strong, old-fashioned linen. Quite dripping wet, it was put upon the shoulders about the whole body in a sitting posture; moderate friction was made (*over* the sheet, not *with* it) for about five minutes. The body was then made dry with towels. A few times, when Mrs. W. felt very languid, Dr. Webster applied the sheet twice in succession. This always revived her very sensibly. When she had the erysipelas before coming to us, Dr. Webster usually poured water upon the wet sheet while it was yet upon the body, and after the rubbing had made it somewhat warm: and after this, rubbing was practised again, to excite a glow.

"'Under the above treatment Mrs. W. gained strength remarkably; soon became able to walk two and a half miles in the morning. She slept in a large and well-ventilated room, and her rest was uniformly good.

"'*Confinement.*—The third of July was one of her best days. She slept remarkably well at night, even better than common, as if nature, in anticipation of the coming event, was recruiting her energies to the utmost. Rose at half-past four; then the pains commenced very slightly; took the rubbing sheet and an injection, and thought she would walk out; but the pains grew steadily worse till half-past eight o'clock, when her infant, a large and healthy male child, was born. The labour was very easy; almost nothing compared with the former one. In about three-quarters of an hour the after-birth was expelled. Wet towels were kept upon the genital organs and the abdomen, and changed often enough to prevent their becoming too warm. So also common sense would dictate that a patient should not be too much chilled at such a time, and yet there is here a great amount of unnecessary fear respecting cold applications. There is incomparably more to be feared from the effects of feather-beds, close rooms, bad food and drinks, bandages, etc. in general use.

"'After the birth, Mrs. Webster slept well a while, and at noon she had a thorough ablution as follows:—In a hip bath-tub (a common wash-tub of middling size is good) a bucket of cold, soft well water was put, and then moderated with hot water about 70 degrees Fah. Dr. Webster aided her in rising, and she bore her own weight both before and after the bath. She sat in the tub for some fifteen minutes, a blanket being about the body; the whole body was thoroughly washed during the time; the water, she said, was exceedingly refreshing. Afterward the hands and face were washed in cold water.

"'After resting half an hour, she ate dinner with an excellent appetite, for she had had no breakfast. The meal was a very plain one, viz., a piece of brown bread toast, with a few good uncooked whortleberries. Gin sling, toddy, tea, coffee, and other slops which are brought into requisition on such occasions, have no place, it will be remembered, in our Water Vocabulary. After the bath, as well as after the dinner, our patient felt remarkably well, quite as much so as any one; now and then there were slight after-pains. She sat up at different times in the afternoon, being up and lying down alternately as she felt inclined, possessing too much knowledge and good sense to be carried away with the nine-day whims of society.

"'At between six and seven of this day it would have been well for Mrs. W. to have had another bath, but Dr. Webster being absent, it was omitted; then also a third bath between nine and ten on going to rest. Meal at evening same as at noon, with the exception of the bread being moistened with milk. After sunset she sat up two hours at least. The evening bath was as refreshing as at noon, and aided much in procuring good rest. The ignorant people may yet learn something of the good and the safety of these applications scientifically made.

"'*Second day.*—Patient slept remarkably well until about two o'clock. Then there came on after-pains, and the infant made some noise, which circumstances together kept her awake part of the time. Here the bath should have been given, which would have prevented the pains, and caused good sleep. Very early in the morning she arose and took the ablution as the day before. She felt well and strong; walked about her room. We should have mentioned, she walked also the previous evening. Breakfast same as the supper. After this she walked down-stairs, with a little aid from her husband, entered a carriage and rode with him a full hour and a half. This pleasant ride in the cool of the morning was to her exceedingly refreshing; she was not fatigued, only made better for it. Knowing it would be so was the reason of our directing it.

"'Awhile after returning from the ride, she laid down and slept soundly. Before dinner she took again her accustomed bath. Dinner, green peas without butter or salt, with brown bread, and a few good raspberries uncooked.

"'At evening, between six and seven, Mrs. W. again rode out. Was up more than two-thirds of the entire day; experienced some pains; these were each time mitigated by the bath. The ablutions are performed regularly on rising, before dinner, before supper, on going to rest, and in the night-time if the after-pains become troublesome. A good deal of friction with the hand at the time of, and after the bath. Injections of cold water, to which she has been accustomed, are used daily. The morning, before breakfast, is perhaps the best time. They may be taken a number of times during the day, if the pains are severe. One or two pints may be used. If the patient is very weak, they should not be too cold, 70 degrees being a good temperature.

"'*Third day.*—Mrs. W. slept not very well. Invalids seldom, if ever, sleep right well more than one or two nights in succession. She feels, however, remarkably well, and is gaining strength rapidly every day: bathes, sits up, walks, and rides as usual. She could now return home to Providence without risk, were it necessary for her to do so.

"'When cases like the above in water-treatment are spoken of by friends of the system, objectors, especially the doctors, at once say, "Did you never hear of poor Irishwomen getting up immediately and going to the wash-tub?" Let it be understood, now and ever, *we ask only that the rule of our cases be taken as the test.* We give such examples as are an *average* of our success under this treatment.'

"MANAGEMENT AFTER CHILDBIRTH.—The truly remarkable effects of water-treatment in enabling our patients to recover so soon from the effects of childbirth, meets with great opposition on the part of some of the medical fraternity. Falling of the womb, it is said, must often be the inevitable result of persons getting about so soon. It should be remembered, that this calamity comes in consequence of *general debility;* and if we cause our patients to go about too much and too soon after childbirth, so as to cause a sufficient degree of general debility, then this result would necessarily follow such a course. But the truth is, the danger lies on the other side. Does not every mother who has been attended in the way of the old modes know, that some days after delivery they become more debilitated than at the time of the birth? The reason by which to account for this is the bad treatment practised. Lying constantly in bed, even for a single day only, will make a strong person weak, nervous, and restless. How much more, then, if the practice is continued for days! In a properly managed water-treatment, the patient grows day by day more strong, and for this reason falling of the womb is not so liable to occur as in the old modes. There is far greater danger in the latter than the former.

"THE BINDER OR BANDAGE.—The universal use of the obstetrical bandage or binder, after delivery, is practised on the assumption that nature is incompetent to do her own work. It is true that art must sometimes be brought to assist her in her operations, but such is not the rule. As the bandage is generally applied, it is almost certain of slipping upward, thus tending to cause one of the very evils—falling of the womb—which it is intended to prevent. Besides, it heats the body too much, thereby causing general debility, a greater tendency to after-pains, constipation, and puerperal fever. If it is ever used, it should be only in those cases where the debility is very great, and then only a portion of the time. The constringing and invigorating effect of cold water upon the muscles of the abdomen renders those patients who use it, not only as good, but of a better form than those who use the common bandage. I speak from positive knowledge in this matter, not from mere theory alone.

"The common wet girdle, which is explained elsewhere, may be worn either a part or the whole of the time after confinement; and the same general rules for its use apply here as elsewhere.—*See body-bandage, as at page 55, only have flannel end instead of calico, wrung out of hot water.*

"AFTER-PAINS.—These are caused by clots of blood accumulating within the cavity of the womb. Persons of high nervous susceptibility sometimes suffer exceedingly with these pains; more even than at the time of labour. In such cases, bathing should be persevered in, hourly, if need be, until the pains are literally worried out. The cold rubbing wet sheet is here an excellent remedy. Cold injections to the bowels are also good, and may be as often repeated as is desired. The bath by means of sitting in a wash-tub may also be employed.—*Sitz, page* 49, *safer.*

"SWELLING OF THE BREASTS.—There is necessarily more or less excitement of the system as the milk begins to secrete. The breasts and nipples should be kept perfectly clean, and should be washed at least two or three times daily in cold water. Nothing in the world is so good to prevent that troublesome affection, soreness of the nipples, as washing them often, both before and after labour, in cold water. If the breasts inflame, the heat must be kept down by pouring cold water freely upon them, and the use of the wet cloths. No poultices are so good as these. In the water-treatment, properly managed, we have never to encounter that most painful and troublesome affection, breaking or abscess of the breasts.

"Mothers cannot be too careful in keeping the breasts at all times well drawn.

"INJECTIONS AFTER LABOUR.—Some writers have advocated that the bowels should be kept in a quiescent state, if they be so inclined, as is often the case, for some days after labour. But this is not a good rule. To leave the bowels inactive tends to cause feverishness—the circumstance most to be feared after the confinement. See that the bowels act at least once every day. The morning, before eating, is on the whole the most suitable time. But if after-pains are troublesome, the cold injection may be repeated often during the day. Injections on going to rest often have a good effect as regards sleep.

"MANAGEMENT OF THE CHILD.—The umbilical cord should never be separated from the child until the pulsations of its arteries have entirely ceased. This will usually require not more than ten or fifteen minutes, perhaps generally not so long.

"Very soon after birth the child should be well washed in water of moderate temperature. About 70 degrees in summer, and 80 degrees in winter, will, I think, be as good a rule as could be given. If necessary, a little mild soap may be used. It is better, however, to get along without it. A little lard rubbed upon the surface many prefer; some get along without anything but simple water.

"No bandage should be put about the abdomen of the new-born child. The practice of girting up infants until they can scarcely breathe is a barbarism that is destined soon to die away. Some thicknesses of fine wet linen may from time to time be placed over the naval as a poultice, after it begins to become sore. The naval heals much sooner with the water dressing than with such as are generally used. The form of the infant's abdomen, treated without the bandage, is, to say the least, as good as when treated with it. We repeat, the common practice of girting children after birth is a cruel one, that ought never to be tolerated

"I do not believe in using very cold water for the daily ablutions of infants. It does no good to make them blue by bathing. An infant that is nursed properly, and kept from over-heated rooms, and all great changes and extremes in temperature, needs only bathing enough for cleanliness. A morning and evening washing, with, at other times, proper cleansing of parts soiled by the natural discharges, will, as a rule, be all that is required. No feather beds or pillows should be allowed for infants. The heat engendered by these always renders them more feeble and liable to colds."

INTERNAL INJURIES TO FEMALES caused by surgical operation.—I can only allude to this; but Mrs. Smedley, who prescribes and superintends the treatment and baths of the females at our Establishment, will correspond with any lady wishing for more explicit information on this and other subjects connected with female diseases or ailments. The articles on these subjects in this book are from her experience of the treatment of many hundreds of patients, of whose cases she has had the sole management.

Grievous indeed have been many of the cases who have submitted to the use of the speculum, caustic, leeches, and the knife internally. There are no cases where there is any occasion for their use, instead of being of such ordinary occurrence that few escape the infliction who apply for assistance in this class of diseases or irregularities. Nothing of the kind has ever been used at our establishment, and many have come here as a last hope of relief, and have been, without any exception that I know of, cured or relieved; and the great recommendation to the treatment is, that ladies soon learn to apply it at home without further advice or assistance. There are numbers now living in comfort and in health, who have been great sufferers for many years before coming. These surgical operations are just as opposed to nature's laws, in the cure of *simple disease or irregularities*, as is the physic, the lancet, the setons, and blistering applied to the whole body. I cannot caution ladies too strongly against allowing the use of the treatment I name; it makes invalids of sound frames, and brings years of sorrow and suffering, and permanent mischief. Ladies will find important information on these matters in "The Accoucheur," by a Student, price 1*s*., or post free for thirteen postage stamps, from W Horsell, 13, Paternoster-row, London.

AFFECTION OF BRAIN FROM FEMALE STOPPAGE.—I purposely avoid explaining this explicitly, as it will be easily understood by those who are interested. One case we had a short time since, perfectly insane, dangerous to the patient's life and those of her attendants. She was, of course, not in the establishment. She had been salivated, blistered on the nape of the neck and behind the ears, leeched in the temples and the thighs, which only stopped nature more, and rendered her operations more difficult, taking the very life away. At this stage she was ordered to a mad-house; but her father applying to us to see if anything could possibly be done to prevent such a calamity, the case was at once taken in hand. There was great difficulty in controlling the patient, as she was strong. The result was, that, soon as a crisis came out over the bowels and legs, she entirely recovered her reason and her health. This was in about two months from the first application of our treatment and bandages, and she is now in perfect health, and has never been ill a day since. We can give a reference to this case in our own neighbourhood. Others, of various ages and constitutions, who have been the same, and from somewhat similar causes, quite deranged in intellect, or martyrs to pain, have had their reason restored, and their health thoroughly established. To some of these we can give references.

CASE OF A LADY, upwards of seventy years of age. This lady came with stomach and liver affection, but more particularly to see if any relief could be given for the sufferings she endured, owing to varicose veins in the legs, and for which she was using what are called patent elastic stockings, made to fit very tight on the legs, and so press in the protruding veins. Her medical advisers could devise no better means of assisting the power of the veins to propel their contents than this mechanical contrivance, which, being so contrary to nature's operations, only gave temporary relief, with a good deal of inconvenience, and leading, eventually, to dropsy in the legs. The patent stockings were at once removed, and damped spongio substituted, and after a short time, wet calico strips with dry over, and mackintosh and flannel; the legs steamed often, then general slight hydropathic treatment to the whole frame. A crisis rather severe came out on the legs, which entirely restored them, and all bandages were cast aside. The general health was established, and, in six months, she left our establishment with her maid for a tour over England, and has since frequently informed us of her excellent health.

SINGULAR CASE OF ENLARGEMENT OF THE BOWELS.—A lady, about forty-six years of age, from beyond the sea, who will not be recognised by the readers of this notice, came to see if anything could be done for her relief, from a distressing enlargement of the bowels, which had commenced after a bad confinement fifteen years previously. The whole of the abdomen from that time began to enlarge, until it spread on the hips, and halfway down the thighs, and protruded in front enormously. The enlargement was of a soft, light, spongy character, and baffled all the efforts of the most eminent of the medical profession to reduce. I had the opinion of my consulting surgeon on the case; he declared that he had never witnessed such an one during his long practice, and gave no hopes of cure. I offered to take the case, to try what could be done, by our hygienic means, to stimulate absorption and increase exudation from the skin. I could safely assure the patient that benefit to her general health would be the certain result of our plans, if adopted, by the extraction from the system of the enormous quantities of an infinite variety of fancied curative compounds she had been in the habit of taking for many years. I saw, from the state of the tongue, and other evident symptoms of deranged health, that there was room for great improvement there. Hydropathy, carefully applied, has this great recommendation, that it can always be made useful to the health in some way, and without any risk of injury. The treatment prescribed was of a general tonic kind, and fomentations and spongio piline bandages over the whole of the enlarged part, kept damp night and day. Severe crisis came on in a few weeks over the bowels, excessive discharge, and the kidneys acted powerfully. The result was, that in about six months the lady returned to her home abroad, entirely cured, reduced to her natural size, and in excellent health, to the great joy and astonishment of her husband and friends.

Another case of enlargement of the bowels is now under treatment, successfully, age sixty-five; present prescription as follows:—

On rising, dry mustard rubbing whilst feet are in hot water and mustard, and holding hot pad to bowels. Forenoon, 44, 28, alternately with 59, 98. Afternoon, 138 and 132, keeping head well wet all the time. Bedtime, 92, keeping head very wet, 194, 193, 206, 207. Alternate bedtime, treatment with 90 general sitz: wear narrow spongio regularly.—On rising, 20. Forenoon, 109, 132, first. Afternoon, 21. Bedtime, 155 and 132. Alternate the forenoon with 32, but shallow 76 degrees, and 29 after. Alternate afternoon with 159, 170.

CASE OF NEURALGIA.—A widow lady, aged about forty, had lost her health by nine years' attention on her greatly afflicted husband. After his decease her health gave way, and she became unable to take any active exercise, and was entirely confined to the house, without any apparent disease, except neuralgia in the head, and especially in the jaws. For this five teeth were extracted, and much medicine administered; but the patient gradually sunk into such a state of weakness, that she could not raise her hand to her mouth, and only spoke in a whisper. Here the gross ignorance of the nervous system shown by the medical attendant was strikingly proved. The nervous system had been prostrated by long and anxious watching and confinement. The cause was easily discoverable, and very discernible. There was no trace of disease of any vital organs. The system wanted rest and increased powers of assimilating food, and making good blood and strong nerves. The suffering in the head and jaws might easily have been traced to the true cause, as the teeth were not decayed. Outraging the system by drawing the teeth, and keeping the unfortunate bowels what is called "open," were all but killing the patient.

In this state we were requested to take her into our establishment, with a nurse to attend her. I at first declined to receive her, as I was afraid she would almost die in the act of removal. But to induce me to take her, she was represented as not being so bad as I had supposed. I consented to receive her, and she lay in bed all but dead for the first few weeks. The result of our nursing and comforting the injured nerves and the calomeled bowels was, that in six months she left thoroughly restored to sound health, and is so now, two years since she left.

ANOTHER CASE of Surgeons' practice, extending over a period of ten years, to 1857. A lady at twenty-five was troubled with pain at the bottom of the back, owing to internal irregularity. The surgeon, one of the most eminent in the city, rubbed caustic over the part, about the size of a five-shilling piece, fifteen minutes; then ordered a poultice, which brought the part to a sore, as he intended, for a counter-irritant, intending to draw out the disease by torturing the plexus of sensitive nerves there. A piece of dry cork was applied to the sore, and bound on, and renewed night and morning, causing intense pain. Medicine was given to "*regulate*" the constitution. The pain became so trying to the frame, after constantly keeping the place open three months, that the patient said she could bear it no longer. The place was healed up, and a blister placed over the whole of the lower part of the hips. When this was healed, cupping was tried all down the back; then leeches all down the spine. All these scientific means failed to give any relief, and the constitution evidently sinking under them, caustic internally, with the use of instruments, was then tried, with other applications, which gave immense suffering, and aggravated the original complaint tenfold. The next plan was to set a seton at the bottom of the back, where the first operations were commenced; this gave great torture, and the lady fainted several times on every dressing of it night and morning; forthwith blisters and heating lotions were applied externally, and stimulants internally, to rouse failing nature. The body had hitherto stood the siege which the surgeon had laid against it nobly, but it gave evident signs of succumbing to the scientific and skilled practice opposed to it; dropsical symptoms appeared, and she came to us. The bowels were enlarged from effusion, and constipated to the last degree: the warm blood had been drawn away, and they would not reply to the weakened stimulus of the vessels. The surface of the bowels was constantly cold, with intense heat internally. The brain, of course, sympathised in all this suffering, and a nearly constant racking nervous headache was the consequence. We began with our soothing applications, which neither offend delicacy or the nervous system. First, got warmth over the bowels, and in the legs and feet, by our nice bandages and fomentations, &c. Then the bowels acted, and, as a necessary consequence of increased vitality, the distension of the bowels and the enlargement of the lower part of the frame began to subside, and the appetite increased: and we saw the reward of our labour, and the blessing of God on the natural restorative mild water treatment. The injury, however, to the nervous system can never be entirely repaired; relief from the miserable state the patient was in was all that could be done.

INSTRUCTION TO MOTHERS FOR THE BENEFIT OF THEIR CHILDREN.—The hydropathic system may be safely applied to children, even at the age of five or six weeks, only strictly attending to the rules below.

Wet pack.—Carefully read the directions given, page 43, using a towel instead of a sheet, a pillow instead of beds for covering. Wring the towel for packing out of water about eighty degrees (or new milk warm); from half an hour to three quarters is quite long enough. Take the child out, and wipe it all over with a wet towel, *the same heat*, and then rub quite dry.

Body bandage, very useful; make and use it according to directions previously given, p. *55*, differing of course in size, and wringing it out in water, new milk warm, as above.

Chest Compress, also, is very efficacious; difference the same as already stated in the body bandage.

Directions in Cases.—*Fever or Sickness in Teething.*—The first thing in the morning rub the child all over with a wet towel, and dry according to directions given in this book; but the water must be about new milk warm. Eleven o'clock put the child in a pack, as directed above; and at night put it into a tub of hot water, as hot as it can bear, for a quarter of an hour, and then into a tub of tepid water two minutes, well rubbing it all the time, according to directions given. Put on the chest compress and body bandage for sleeping in, and a wet bandage also round the child's head. Continue this treatment till the fever has subsided, and then only give the wet and dry towel.

Inflammation in the Chest.—Foment the chest half an hour, as previously described; then put the child in a pack for half an hour; then wipe the body over with a wet towel; after which, put on the chess compress and body bandage. Four hours after this, foment again as before, and rub the child over with a wet towel again, replacing the wet compress, and at night use hot and tepid bath as previously stated in Fever Cases Continue this treatment till the child can breathe freely, and then slacken the number of baths by giving only the pack, and applying the fomentation at night.

This treatment was applied to a child near our residence, who was only a few weeks old, and a perfect cure effected, after the child was given up. Many more cases might be given.

For weak spiues, the constant use of the wet compress would be found very advantageous, and also sitting bath.

THE CROUP.—Directly the symptom is discovered, let the child's feet be put into hot water; undress it, and apply a hot pad to the chest; when this is done, then get ready a hot bath for it, where it can be under the water entirely, just supporting the head, and keeping it wet with cold water (or putting a cold cloth round it); well rub the child with the hand whilst in the bath, especially the chest; and as soon as it begins to perspire, then take it out, and sponge it quickly down with some water, eighty degrees, and then put it into a warm blanket and foment the chest, and put a mustard poultice on the soles of the feet. Repeat the above, if the attack does not go off quickly; and after the attack, let the child wear a spongio piline chest compress regularly for a month or two, keeping it damp at times with hot water. 68 on list also useful.

MEASLES.—As soon as the child appears sickening for this disease, or any other skin eruption common to children, immediately put it into a pack (see article on page 220), and give it two packs a day, morning and night, till the whole body is fully covered with the rash; then stop packing altogether, and do nothing but wash the body with water eighty degrees, twice a day, morning and night, and oftener if the rash is very irritable. Keep the child warm, but not hot; keep it quiet, and do not give it much food, but as much cold water as it likes to drink. Pack with napkin or towel. The same treatment for adults, only pack with sheet.

HOOPING COUGH.—The first thing in the morning, foment the chest (see article on Fomentation) for a quarter of an hour, then put the child in a wet pack, making this difference to the general pack, viz.: first wrap the feet and legs to above the knee in flannel, then take a towel, only large enough to go down the front of the body from the neck to the flannel's edge, wring it out of hot water, and then proceed as usual. After the sponging over the body, put on a chest compress, made of spongio piline or calico, and a body bandage, calico and oil silk, both squeezed well out of hot water, and wear these regularly night and day. Afternoon, give a mustard and water foot bath, eighty degrees, for a quarter of an hour, and well rub the feet dry with a warm dry hand, and put on woollen socks. Bedtime, give a hot and a tepid bath after, as stated in Fever Cases, and renew the chest and body bandage with hot water, and put a mustard poultice on the soles of the feet, to be worn all night if possible.

CHILBLAINS.—If not broken, put the parts affected into as hot water as can be borne, and raise the heat when in, for two or three minutes till the parts are very hot; then put them immediately into another vessel of cold water, just one minute, then rub them dry and warm with the dry hand. Let this be done whenever itching is felt, and a cure will soon be effected. But if broken, then apply the steaming process as directed in article upon Burns and Scalds.

SMALL POX.—As soon as there is any appearance of the eruption, wet pack body with towel wrung out of water 90 degrees, three quarters of an hour night and morning, or as often as the fever rises; after pack, if in a child, a towel rubbing, at 80 degrees, and put on wet body bandage; continue daily packing until the eruption is fully out, then only sponge the body night and morning, with tepid water 80 degrees. If fever should recur again, go on packing. This will carry the case through, giving barley water or cooling drink, as receipt in this book, or arrow-root; no flesh-meat.

The following treatment for SCARLET FEVER, or DIPHTHERITIS in children, never fails to restore, if applied in any reasonable time after the commencement of the attack:—

When the usual symptoms appear, which are sore throat, nausea, inflamed eyes, and general chilliness, followed by heat and red patches on face and arms, immediately commence as follows:—Put feet into hot mustard and water, and cold wet bandage round head, whilst you prepare a "*Wet Pack*," which is done by laying a *warm blanket*, or two blankets, on a sofa or bed, and a *well* squeezed-out towel out of hot water over the blanket; then wrap the child's feet up in a separate piece of warm flannel, and lay it naked on the squeezed-out towel, and, lifting up the child's arms, wrap one side of the towel round the body; then lay the arms down, and wrap the other side of towel over; then well wrap one side of the blanket over, and then lay a soft pillow or blanket over the stomach, and wrap the other side of blanket over, and let the child lie so for half or three-quarters of an hour, taking care that the head bandage is kept cool with cold water. When the child has been in the *Wet Pack* the time above named, take it out, and quickly sponge or rub it over with another towel and tepid water, and then well rub it dry with a coarse dry towel, and put on calico body bandage, squeezed well out of hot water, tight round the bowels, the outer round dry. When dressed, pack the throat with a strip of calico, or a small napkin squeezed out of hot water, and a warm strip of new flannel over it, the flannel large enough to wrap round the throat several times; still keep the wet head bandage on, frequently re-wetted when warm; and whenever the feet are cold, put them into hot mustard and water for three or four minutes, and wipe them over with a damp towel before rubbing them dry. Continue the above treatment each day till the skin is red with the rash, and then only sponge the whole body over morning and night with warm water, keeping on wet body bandage, and attending to throat, head, and feet, as above, and the child will soon be well. If the child is too *delicate* for the *Wet Pack*, only use the *sponging*, &c. Let the child drink what cold water it wants, and never mind about troubling it with food, as *very little* is needed; and that little should be very *light;* no stimulants or medicine whatever.

When the fever settles principally in the *throat* and *head*, then, in addition to the above, apply 82 ;[*] and if throat is still bad, put a mustard poultice on till red, then spongio *dry* for half an hour, and then apply 82 again. Also put the back of the child's head in a basin of cold water, and sponge the forehead well whilst in, for a quarter of an hour at a time, several times a day. Give "cooling drink" three or four times a day, whilst fever is high. After the feverish symptoms are gone, frequently, in delicate constitutions, the bowels and legs, and sometimes the whole body, swells; but no alarm need be felt, as it is only from weakness; but then adopt the following treatment:—put *soles* of feet in hot mustard and water, and then dry-rub the legs with warm hands, rubbing *upwards* several times a day, and morning and night dry-rub the whole body with hands and *dry mustard;* wear a piece of new flannel round the body, instead of the body bandage, and wrap the legs up with strips of new flannel, and give one teaspoonful of Cod Liver Oil every night in a little cream. In case of adults, see Scarlet Fever, page 96.

MISCHIEF OF EARLY EDUCATION. COMMON AND HOPELESS CASES OF CURE BY ANY DRUG REMEDIES, and only partial restoration by any others.—A lady, age about thirty, had been highly educated when very young, taught several languages, began to learn Latin at four years old, and, as a natural and certain consequence of such a training, the nervous fluid or vitality was drawn from its proper office of developing the bodily frame, and made her one of the very numerous class of invalids who can only get on in life with the help of warm rooms and carriages and nursing; unfit for any active exercise, or the active duties of every-day life; with her name constantly in the doctor's ledger, she was one of that numerous class who keep up the physician's status in society, and enable him to drive his brougham and give good dinners. When will parents study the natural and necessary conditions of healthy development? At present the practice of enfeebling and ruining the constitution in early life is in full force. I often argue the subject with parents, but rarely to any good result: they are so afraid of their children not being as clever as others, that they most effectually defeat their very reasonable desires by starving the body, depriving it of its due share of nervous vitality, to supply the brain for these accomplishments, which, when acquired, the body has often not vigour to use. "I give my children so very little schooling," says one mother, "they could not have less and not be very ignorant; I only permit them to be under their governess so long during the day, which is surely very little." I, in reply, point to the difference betwixt their sensitive, delicately formed children and those of the labouring population; and the difference, not only in bodily conformation, but in the unnatural gravity and air of older people in their children, which polite society so much admire: the "quiet manners," no "vulgar boisterous ebullitions." But what does this prove? Why, that in these cases the brain has been drilled into what is not natural; it is already burdened with thought. The labourer's child is natural, light, joyous, when fed and clothed; and even when they see around them misery and privation, it does not depress them: they are not taught to look on the vicissitudes of life with concern; that will come time enough, and when nature has given them a frame to bear their trials. Not so with those in better circumstances; with them, all is artificial. Girls and boys, highly trained, have the manners, the ambition, the cares, the fears, and the hopes of adults; and, if they live to adult age, have a double share, and an early injured frame to carry them; so life is often miserable and a burden, and the seeds of sorrow and anxiety handed down from generation to generation. Besides this early brain-work, stimulating flesh-meat and drinks are used instead of a purely vegetable and farinaceous and milk diet, which would give them more muscle and less fire. I have been greatly struck with the difference between my free hospital patients and my establishment patients. The former are all of the labouring class, the latter of the educated classes. The labouring class are cured of diseases at my free hospital in one-third of the time usually that the others require; and the more difficult cases of nervous dyspepsia are comparatively rare in the labouring class, whilst they form the majority in the other.

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[*] 82, THROAT FOMENT. Take half a yard of flannel, fold in four lengthways, wring it out of hot water, wrap round throat, and one yard dry flannel over, renew every fifteen minutes for one or two hours, wipe with tepid wrung-out towel, and put on spongio or flannel sprinkled with warm water, and one yard dry flannel over.—Cooling Drink. To one teaspoonful of citric acid, two of cream of tartar, and the juice of half a lemon, add a quart of cold water, and sweeten with lump sugar. If lemon cannot be procured, add a little more citric acid, and the juice of an orange.

The following is the introductory treatment in several cases of this kind, followed by more active treatment as the frame could bear it, and which succeeded in restoring in a wonderful manner. Such cases we could give references to.

TREATMENT.—On rising have feet in 100 degrees mustard and water, and hold hot pad to bowels; then have a dry mustard rubbing all over the body; then put on all the compresses, damped in hot water, and woollen vest, whilst feet are in hot water; then rub feet with cold water and hand till warm, and finish dressing; when dressed, take a two minutes quiet sitz, 65 degrees, and get to cold as soon as you can; to be taken in running sitz bath, and very little water. Forenoon, have head bath 70 degrees five minutes, then foot and hand bath in 100 degrees mustard and water five minutes, then rub each hand and foot separately with cold water and hand till warm; take another two minutes sitz as on rising. Afternoon, have a towel spinal rubbing, 80 degrees, three minutes, whilst feet are in 1 0 degrees mustard and water, and hold hot pad to chest and bowels, and sit upon hot pad; then re-damp compresses, and rub feet with hand and cold water, and when dressed, take a two minutes sitz as usual. Bedtime, take hand bath 70 degrees five minutes, and then put feet into 100 degrees mustard and water for three minutes; then put on wet and dry socks, only wetting the soles of socks in hot water; if compresses are dry, re-damp them as before; if damp, leave them alone. DIET: before rising have a raw egg beaten well in warm water, and a little sugar. Breakfast, have a rasher of fat bacon and white bread, and a cup of weak black tea. Before forenoon treatment, have a cup of beef tea and a little toast; dinner, a little meat and vegetable, and pudding and stewed fruit. Before afternoon treatment, have another raw egg, as on rising. Tea, as breakfast. Supper, a little arrow-root, or sago creed with water, and one tea-spoonful of brandy in a bason of it; no toast nor bread; drink cold water by sips all day, especially whilst under treatment. Mr. Monk's Exercises (Ling's) gently once a day. Never go out of doors without goloshes and respirator, and not at all in strong winds.

Since the foregoing was written, I have had several youths from school who have been pushed beyond their strength to acquire knowledge, which will now never be of any use to them, as their nervous system is ruined in the bud; they can never stand great mental efforts again, and will probably be invalids for the term of their life. It is, however, almost useless warning parents against thus defeating the intentions of Providence in giving them healthy offspring; they cannot but acknowledge the truth of these laws of healthy development, yet their practice is the same. It is the height of injustice to the young.

TESTIMONIAL TO SUCCESS OF HOME TREATMENT TO CHILDREN.—"J. Smedley, Esq., Dear Sir, as the benefits of the hydropathic treatment cannot be too extensively made known, I beg to forward you the following case. A few weeks back, on arriving at home, I found my youngest child, a girl of three years, suffering from a severe affection of the chest; breathing exceedingly quick and heavy. We retired to bed, but not to sleep, and passed a wearisome night. The following morning, finding the child worse, I applied hot fomentations, and afterwards the chest compress as prescribed in your work on 'Hydropathy.' Finding the head very hot, I laid a wet cloth upon it, which gave considerable relief. I repeated the fomentation during the day, and also before going to bed at night, without any visible signs of improvement. About one o'clock the child appeared much worse, which caused my wife to feel somewhat alarmed that we had not called in medical aid; however, we got up, and again tried the fomentation and re-wetted the compress, and again went to bed. In a short time the child fell asleep, her breathing became much easier, and she slept for about four hours. Rose in the morning, and ate a hearty breakfast, and in an hour afterwards was seated at the table amusing herself with some books; and before the day was over, was playing about the room. On Christmas Day another of my children appeared as though she were about to have a similar attack. Before going to bed, I gave her a fomentation, and put on the compress. In less than a quarter of an hour, the breathing was easier, she was sleeping soundly, and passed a night of undisturbed repose, and rose in the morning quite well. Without wishing to cast any reflection upon the faculty, or their mode of treatment, the probability is, that had I called in a medical man, my children might have been laid up for weeks, have been brought exceedingly low, and at the end of all, a long bill to pay, which is anything but the most pleasing part of the business. With best thanks for the knowledge imparted in your little book, I remain, dear Sir,

"Yours truly,

"*Derby, January* 11*th*, 1858. . . . ."

CASE OF SKIN DISEASE.—A married lady, age fifty-four, had a scaly eruption on the upper part of the body, came on five years before; general health, in consequence, much deranged; tried medical advice in vain; bowels constipated, and throat often nearly made up from stomach irritation; came to us hopeless of cure, but hoping for some alleviation. This was a case requiring the vital powers of the blood-making organs invigorating, to enable the body to throw off the disease; but the allopathic doctors had nothing to offer but palliatives,—nothing to put the stomach in a healthy state, and to make good blood; their medicine sickened the stomach, to commence with, and consequently stopped any chance of real eradication of the disease; and their applications of ointments and lotions to the skin only occasionally palliated the irritation.

The following treatment in a few weeks soon did wonders, and quite restored the appetite, and the bowels to healthy action. Crisis came on, after a fortnight's treatment, over the whole body, casting off the disease. The following were the applications prescribed:—

On rising, have 90. Forenoon, 130 and 52, 3 minutes, alternate with 123, also taking 130 first. Afternoon, 130 and 90, alternate with 130 and 143. Have an oil-silk and calico jacket, with collar and long sleeves; keep calico damped with tepid water regularly, and wear it night and day; make also an oil-silk and calico mask for the face, and wear it as much as possible. Attend to 206 and 207 and wear 163 and 187—201. Wet pack the legs and thighs with strips of calico and flannel, as 214 on list. The body, where there was no eruption, was rubbed with dry mustard once a-day, to stimulate the action of the skin. When crisis appeared, tepid applications and soaping as in crisis treatment, applying mustard poultices to throat when affected; three glasses of cooling drink per day, also 208.

No. 1.—Lady, age 48; change of life; hæmorrhage; fair constitution; had sixteen children. Tried many plans for stopping the hæmorrhage, without avail. Treatment:—On rising, 105, six minutes, and 20; forenoon, 112; afternoon, 105, six minutes, feet in hot mustard, 105, six minutes at bedtime.

No. 2.—Lady, age 45; fair constitution; liver slightly affected, stomach more so, and for a longer period. 20 on rising; forenoon, 92 for ten minutes, if not chilly; feet on hot pad; if at all chilly, only five minutes; afternoon, as forenoon; and in each of the above have the head rubbed with hand and cold water during the time.

No. 4.—Lady, age 17; rather slight, and brain overworked. Rising, 108 with 131; forenoon, 112, feet in hot mustard; afternoon, 105, six minutes; bedtime, hot mustard foot bath six minutes, and sleep in wet and dry socks, and wet and dry gloves.

Case No. 12.—Lady, age 40; slight and delicate; long case of stomach complaint. On rising, 26; forenoon, 156; afternoon, same; at bedtime, gentle foment to stomach and bowels 20 minutes, then replace body bandage, wet and dry socks.

Case No. 9.—Lady, age 47; constant discharge for more than a year; tolerable health. On rising, 32; forenoon, 37 or 27; afternoon, 105 and 129.

Case No. 51, extending over a period of thirty years.—We soon got crisis out in the knees, and now, for the first time, nature is renewing the parts:—"When about 15 years of age, a weakness came in my right knee, after a fever; sea-water bathing restored it. Some years later, I sprained my left knee, when Sir Astley Cooper ordered blisters, ointments, and eventually knee-caps, as the right knee again became weak; the weakness increasing, I was again leeched and moxed* by Aston Key. Had cold salt water poured over the knees, and all kinds of *irritating* ointments, until I could scarcely move at all. Champooing and vapour baths were tried at Brighton, which dreadfully weakened me. Fifteen years since, I was advised to consult a Mr. Critchett, who tightly strapped up the knees; from which treatment, after a time, I derived great benefit, and could walk two or three miles, and trusted I should never suffer again, as the pain entirely left me, which had been for years almost incessant. Three years since, I fell in the street, over a piece of orange-peel, with great violence, on my right knee, when all the former weakness and pains returned; and from that period I have been suffering, sometimes better, and again worse. Having been advised to try Hydropathy, I sincerely trust that the blessing of God may accompany your skilful treatment, and that, through his mercy, I may be restored to health and strength.

"I am, dear Madam, yours truly, ..."

Case No. 50.—Lady, age 30; common height, spare frame, and much emaciated; delicate health all her life, without any particular disease. Had she been advised early to make the best of her strength, would have had tolerably good health; but the continual physicking never brought any nourishment to the exhausted frame, and when she came to us, was a confirmed invalid, and no hope given by her medical advisers of any improvement. The following treatment immediately told beneficially; and it will be seen, the treatment is simply nursing the natural powers, and not attempting any great scientific measures to compel the already weakened nutritive organs to action. Nature will not be forced; if she is to restore, it must be in her own delicate manner, or not at all.

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* See Index; article, "Burning with Moxa."

On rising, 26 out of 90 water, and wrap feet in pad, or put hot bottle to them. Forenoon, 132 and 158, whilst reclining according to 76. Afternoon, 108. Bed-time, 72 and 73, both with tepid, and separately; well cover the body; attend regularly to 200 whilst reclining, and 77 same time; wear 169, 172, 177, back and front; 195 occasionally, 153; also see 196, 198, 207, 208, 212, 213.

Case No. 5.—Lady, age 40; had good health to about a year since, when had rheumatism, all the joints swollen; had eight children. On rising, 25, with mustard; forenoon, 39, alternate with 35; afternoon, 157, alternate with 123. 194, 193, 199, 207, 206, 163.

Case No. 6.—Lady, age 24; asthma, and rather delicate. Sleep, while you can, in the morning, then have 123 and dry mustard, 186 and 207; forenoon, 59 and 108; afternoon, 143; bedtime, hot mustard foot-bath five minutes, and sleep in wet and dry socks; 69 once a week, and nothing more that day.

A LETTER FROM AN ENGLISH PHYSICIAN.

"*S . . . .*, *March* 15*th*, 1858.

"DEAR SIR,—"I have received, through our mutual friend, your pamphlet and your very kind letter. I beg to thank you for them both, but much more so for your kind invitation, which I will avail myself of at the earliest period I can. I am a great admirer of the principles of the water treatment, but am not practically acquainted, to any extent, with its application. My attention has lately been more directed to it, from having, in the month of September of last year, contracted an attack of acute rheumatism, which has rendered me more or less incompetent for active duties since that time.

"I have a great horror of medicines, generally, although I have been engaged in their use and abuse forty-five years. My abhorrence, therefore, may fairly be traced to the result of my experience of their frequent inefficiency, and their more frequent misapplication. I preach to my patients, as I practise for myself, the simple doctrine of 'Go and wash in Jordan, and be clean.' But this is not mystical enough for the many, and, despite one's reason and conscience, we are often obliged to lend ourselves to (?) deceit, and to give what our patients believe to be *a medicine*, a something in itself inert, to meet their belief in the mysterious value of physic. Where the water treatment is applied, as it is unfortunately often empirically, *and held out to be a specific for the cure of all diseases*, it is manifestly absurd; but where it is judiciously applied to properly selected cases, I believe it to be the most valuable medical agent we possess; but then, like all other remedial agents, its virtues must not be upset by unnatural habits. In your Establishment you can do what we cannot in the houses of our patients. You can command and control their diet and their regimen; we can, in practice, only advise it; and this makes your water treatment, especially when practised in the Establishment, of so much the greater value.

"Believe me, yours faithfully,

J. D."

"*J. Smedley, Esq.*

OBJECTIONS AGAINST THE FREQUENT USE OF STEAM OR HOT WATER BATHS.—There is an unfounded prejudice against the frequent use of steam or hot water baths, on the supposition that they are relaxing, enervating, and induce susceptibility to cold. Popular prejudices are not always to be set aside as foolish; for I believe in all cases, or with rare exceptions, there is some truth for their foundation. This is the case with respect to the manner in which hot baths are used in this country. A deep vessel, in which the body is immersed up to the neck, is used, filled with hot water. The bather, feeling it very comfortable and soothing, stops in often half an hour, or even an hour, relaxing every muscle and every organ of the body, and comes out without any application to cause re-action, as with our cold dripping sheets, &c. The system is quite unable to cause re-action from its own vitality, and does not get over the effects often for twenty-four hours. The same by steam or hot air baths. Now the practice of the Russians in their cold climate, and the Turks in their hot climate, is totally different. They find the steam and hot-water baths highly beneficial, and so universally are they used in those countries as to become the rule with all classes. Hardier people do not exist.

Why do not our scientifically educated men open their eyes to the principles of such bathing? They know both Russians and Turks all and invariably recognise the necessity of applying some cold stimulating application to restore the power of the skin, and stopping the weakening process of perspiration when the object has been attained of drawing out matter from the sebaceous and other glands, and soothing the nervous system. This is never ordered by the medical professor in this country, and the hot baths, which if applied on principles recognising the nature of the human frame would be of incalculable service, are more often and almost always injurious.

I do not claim for Hydropathy any new discovery in the application of water; everything that the best Hydropathists have prescribed is older than history, and we see whole nations practising Hydropathy; but in our boasted wisdom we have looked upon the Russians as stark mad in rolling in snow after a hot bath, and believing it is a process only fit for such madmen as the Emperor Paul, or such half-animal, half-human beings as his subjects; and in the case of the Turks, as only for the gratification of their sensuality. We are egregiously in error in both; and no doubt both Russians and Turks look upon us as rather an unclean set of beings, when they hear vast numbers of Britons are never entirely washed from the time the midwife cleanses their little bodies when they come into the world, until the time the layer-out of their corpse washes it for interment. What is the New Zealanders' remedy? For cold or fever they dig a hole in the earth, put in wood and set it on fire, and upon the wood flat stones; when the fire is out, the patient goes into the hole, with a calabash of cold water; the hole is covered with boughs and sods, the patient sprinkles cold water on the hot stones to make a good steam bath; after a while the cover is removed, and his friends above douche cold water over him. Here is Hydropathy, and how old history cannot tell.

The kingdom is in the hands of the "*legally appointed*," and it has not been the practice of their forefathers in the profession from time immemorial to depart from the London Pharmacopeia and the

Materia Medica, which they have sworn to practise by; and besides, to have the reproach of innovation and adopting *any* of the practices of such low barbarians as the candle and oil-eating Russians, or stupid automaton Turks, is not to be thought of by the enlightened College of Physicians. Nevertheless, I maintain that the steam and hot-water baths are, when judiciously applied, of incalculable benefit both in health and disease. In my own person I experience it continually. I could not go through the almost night and day work, mentally and bodily, as I do, and with but a slight frame, if I did not take a hint from the before-named barbarous people. When fatigued, and, to use our expressive phrase, all but "done up," morning or at bed-time I get a six minutes steamer, and cold sponge, or cold dripping sheet, or cold shallow bath; and if I have a good deal of work before me, I put on wet body bandage, with calico or flannel end, and wear it till afternoon. I get a hot sitz as in list 93, six or eight minutes, and similar cold applications; or hot shallow, as in list 33, so different from the deep body of hot water in ordinary baths. I find all these baths strengthening, invigorating, and *never relaxing*.

A FEW MORE LINES ON THE SIN OF INJURING THE BODY AND SHORTENING LIFE BY THE USE OF TOBACCO.—A patient, to-day, has described to me the bondage he and his friends were in, to tobacco. He, happily for himself, came to my establishment last summer, and broke the spell. It was, however, so strong, that, in face of his convictions of the mischief it was doing him, he could not resist taking a pipe now and then, which was followed by the promptings of conscience, that he was indulging in what had already so seriously injured his health and his usefulness. He has now, however, I believe, got quite over the temptation, although he has smoked for upwards of forty years; and his present excellent health, vigour, and peace of mind now well repay him for the sacrifice. He took a few pipes three or four months since, and the consequence was a fresh crisis, his frame having been so much invigorated by the treatment last summer, it would not bear the presence of this narcotic in the blood, but immediately threw it off in a rash on the skin.

The grand principle of Hydropathic treatment is, that it so invigorates and purifies the whole system, that the laws of nature, which will not bear the presence of morbid matter in the system if there is power to expel it, comes into full force, and the poison is no sooner put in, but the healthy tissue, glands, &c., unless overpowered, are offended by it, and set about throwing it off by crisis, diarrhœa, &c. Many, who are horror-struck at the sight of a drunkard destroying himself body and soul, are quite easy when performing the same operation upon themselves in a way slower and less offensive to society, but which nevertheless is suicide after all, simply to gratify the depraved nature.

A POISON: BY DR. PROUT.—There is an article much used in various ways, though not as an aliment, the deleterious effects of which on the assimilating organs require to be briefly noticed: namely, tobacco. Although, confessedly, one of the most virulent poisons in nature, yet such is the fascinating influence of this noxious weed, that mankind resort to it in every mode they can devise, to ensure its stupifying and pernicious agency. Tobacco disorders the assimilating functions in general, but particularly, as I believe, the assimilation of the saccharine principle. I have never, indeed, been able to trace the development of oxalic acid to the use of tobacco, but that some analogous and equally poisonous principle (probably of an acid nature) is generated in certain individuals by its abuse, is evident from their cachectic looks, and from the dark and often greenish yellow tint of the blood. The severe and peculiar dyspeptic symptoms sometimes produced by inveterate snuff-taking are well known; and I have more than once seen such cases terminate fatally with malignant disease of the stomach and liver. Great smokers, also, especially those who employ short pipes and cigars, are said to be liable to cancerous affection of the lips. But it happens with tobacco, as with deleterious articles of diet, the strong and healthy suffer comparatively little, while the weak and predisposed to disease fall victims to its poisonous operation. Surely, if the dictates of reason were allowed to prevail, an article so injurious to the health, and so offensive in all its modes of enjoyment, would speedily be banished.

INJURIOUS EFFECTS OF SMOKING.—S. Solly, Esq., F.R.S., the eminent surgeon of St. Thomas's Hospital, Borough, has lately delivered a very important Lecture on Paralysis, before the Students of that excellent institution, in which smoking is pointed out as one of the various and insidious causes of general paralysis. After condemning the immoderate use of malt liquors or spirits, which only stimulate for a time, and afterwards produce the most enervating and pernicious effects, the lecturer proceeded:—"There is another habit also, which I cannot but regard as a curse of the present age—I mean smoking. Now, don't be frightened, my young friends; I am not going to give a sermon against smoking, that is not my business; but it is my business to point out to you all the various and insidious causes of general paralysis, and smoking is one of them. I know of no *single* vice which does so much harm as smoking. It is a snare and a delusion. It soothes the excited nervous system at the time, to render it more irritable and feeble ultimately. It is like opium in that respect, and if you want to know all the wretchedness that this drug can produce, you should read the 'Confessions of an Opium-eater.' I can always distinguish by his complexion a man who smokes much, and the appearances which the fauces present is an unerring guide to the habits of such a man. I believe that cases of general paralysis are more frequent in England than they used to be, and I suspect that smoking tobacco is one of the causes of that increase."

LOSS OF VITAL HEAT WHILE DRESSING.—This deserves especial notice; for, in cold weather, the good effect of the bath is often lost, and positive mischief done, by not fully dressing soon after the bath. Persons get their bath, get good re-action, and then let this subside by being exposed while finishing their toilet. They should avoid this in cold weather, or better not use water at all." Then, again, to feverish habits cold water is highly agreeable and refreshing; but in these cases great care should be observed to use cold water moderately, because it so much more easily excites the frame. Moderation will do great good in such cases, and take away the hectic flush, and soothe the feverish skin. Of all things avoid cold sponge baths and towel drying; have a sheet to dry with after the sponge bath, or any other bath. While the towel rubbing is going on, the body is exposed, and the vital heat rapidly evaporates, and, in delicate cases, to their great injury.

FATIGUE AND COLD AFTER TRAVELLING.—On returning from a journey on a very cold frosty evening, and having had but little sleep the night previous, and little opportunity for a comfortable meal the day or two before, on arrival at home I took tea at six o'clock, and at eight had a hot shallow bath twenty minutes, soaping over well with common yellow soap and flannel pad, and with a hot pad on the chest and bowels while in the bath; on coming out of the hot shallow, had sponge over with water nearly cold; dressed partially, then had a cold sitz six minutes: dressed entirely, and felt thoroughly restored, and all fatigue gone; went to bed at usual time, slept soundly, and in the morning felt the delightful invigorating effects of the evening's bathing operations. Were this adopted after cold fatiguing journeys, many would be saved from illness and disease, as the system often suffers from lowering of the vitality of the frame, for days or weeks after. Bath No. 98 will do as well.

ADVICE TO A VISITOR.—The proprietor of a public journal is at this time (winter) a visitor at the establishment; he complains that in the winter he is seldom without a bronchial affection, and consequent cough and expectoration, which, if not stopped, must inevitably lead to serious disease or consumption. He is clothed in thin broad-cloth, light open waistcoat, black silk stock, no under-clothing, cotton stockings gartered under the knee, preventing the free circulation of the blood to the feet. His medical adviser, although giving him medicine for years to stop the cough, never once inquired as to his clothing, or gave him a hint that it was wrong. Before expecting any benefit whatever from our baths and bandages, I ordered him good warm under-clothing, and beaver cloth coat and vest; the vest made to button up to the throat, and with short sleeves to protect the arm-pits. I have not the least doubt he will commence a new era in his life and usefulness. With even two days' baths, and warm under-clothing, and lambs' wool socks, with body bandages, he felt altogether different and more comfortable. These unprofessional matters are as absolutely necessary for the surgeon and physician to attend to as any of their prescriptions for the restoration of bodily vigour; and if not attended to, will render any remedial measures unavailing.

WEARING MUCH HAIR on the head, and especially at the back of the head, is very injurious to any with much mental employment, or any delicate persons. I have frequently noticed this in the case of ministers of the Gospel; to them it is often a cause of suffering without their being aware of it. Take a case of any serious attack in the head, the doctor immediately orders all the hair to be cut off, and the head shaved, the very first step; this shows the importance he attaches to relieving the head of covering when the brain is affected: and in a degree, by much mental work, there is a constant tendency to excitement there. The hair should be cut quite close at the back part of the head.

ADDITIONAL NOTE ON CLOTHING AND CHEST COMPRESSES.—This work has been delayed partly from extending it further than I originally intended, and partly from the press and engravers not being able to keep pace with my MSS. Winter is now come, and, as usual, has brought with it the regular supply of bronchial and consumptive patients, the majority, by far, from not taking the ordinary and necessary precautions on change of season, from a very warm and beautiful summer to the present state of the weather, when the thermometer is down to 25 at nine a.m. A few months since it was almost regularly at 65 to 70, with a mild south or west wind. The beginning of this winter has been the mildest for a great number of years; but the sun not having power to dissipate the moisture, consequently influenza and bronchial affections have been very prevalent.

I use very light clothing for summer, mostly linen trowsers and vest. When autumn comes on, I make some alteration,—thicker under and outer clothing; and in winter, stouter still. The autumn clothing is ready for spring, and the winter for the following year. By this plan no more expense is incurred, and while I have been able to attend to my duties, and prescribe for those who, though naturally more robust than myself, have been laid aside simply from not following nature's hints in guarding against the change of season.

The usual mode of making waistcoats leaves the chest too much exposed; for the armpits and sides of the chest are most tender. A person goes out, buttons inner and outer coat up close, becomes warm with walking, the armpits and sides of chest probably in a more or less state of perspiration; he comes in-doors, throws outer coat off, unbuttons body-coat, and at once admits the cold air to the exposed parts under the arm and front of chest; perspiration is at once checked, without the reactionary effect of our cold water applications, the blood is driven in, and congestion takes place. These may appear to some trivial and unnecessary matters to notice; but when patients come with the mischief done, the very same principles have to be considered and put in practice for their recovery, which, had they been adopted before, would have saved them from the attack. Gentlemen's vests for autumn, winter, and our generally cold springs, should be of cloth, thick for winter, and made to button up to the throat, and with short fine cloth sleeves, about six inches long; these sleeves protect the armpits and sides of chest, and the comfort and usefulness of them can only be appreciated by those who have tried them. The absurd fashion of exposing the chest by wearing waistcoats open in front, causes great numbers constantly to suffer from chest affections, and eventually to lose their lives. The usual fashion is to have the legs and arms, and parts of the body where there are no vital organs, and which would take no harm from exposure (as in the case of the kilted Highlanders), carefully guarded from cold. Persons would not like slits in these garments to let in the cold air, but they do not object to have the vest open, allowing the cold air to drive in the blood from the surface of the chest and windpipe, and consequently causing cough. What does the doctor prescribe when cold has been taken in the chest, with bronchitis, or inflammation of the chest? Why, the first thing he thinks of is to cause counter-irritation on the surface by blisters or mercurial ointment, making the chest red with the blood that he wishes to draw away from the congested vessels internally, and which the patient might have done by the most simple natural precautions on change of season, in keeping in warmth on the surface of the chest, and preventing checked perspiration by a more sensible fashion of vest and thicker coats, &c. Thousands go off every season, by consumption and bronchitis, from neglect of these simple precautions. Females should also have warm chest and throat clothing; but here again multitudes sacrifice their health and lives to the fashion or mode of the times.

Of all parts of the body requiring protection, none is of such vital importance as the chest; and all fomentations, compresses, blistering, and other counter-irritants are entirely nugatory and temporary in their effects, if it is not well protected, so as to keep the surface and the lower part of the throat constantly warm. Whatever may be said of the benefit of exposure to harden, none can set the laws of the constitution of the body at defiance with impunity. Labourers and others, who are often exposed in the winter, die by hundreds from bronchitis and consumption, from having laid the foundation of the disease by exposing the chest. I am seldom without such cases in my free hospital.

PROOF OF THE SUCCESS OF THE MILD WATER TREATMENT IN THE MIDDLE OF WINTER.—The case, as will be seen, was a very delicate one.

"———, 26*th February*, 1858.

"DEAR SIR,—I can scarcely believe that it is three weeks since I left your Hydropathic Establishment at Matlock Bank, but so I find it to be: so swiftly does time pass away. I have delayed writing till now, that I might see how I felt, and prove the permanency of the benefit I derived under the treatment. I am pleased to inform you that I continue to improve, and believe I shall be stronger than I have been for years, and with the important knowledge I learned from you, I shall be able, under ordinary circumstances, to preserve my health. I continue the treatment at home as you prescribed to me, and shall, as far as circumstances will allow. I take a dripping sheet every morning, and two sitz baths per day. I have not preached since my return, as I have a supply taking my work, and my friends think it advisable that I should not begin too soon after so long and serious an illness. I do not expect to resume my regular duties till about the middle of next month. I have considerable crisis come out on my legs and arms since my return. I cannot express the gratitude I feel to Almighty God that he directed me and opened the way for me to come to your Establishment, and to you for your great kindness to me while there. I believe I owe my restoration to health, yea, my present existence, under God's blessing, to the Hydropathic treatment. Nearly the whole of last summer I seemed to be like a shipwrecked mariner, lying on life's last shore, struggling to get to sea again. The medical man who attended me furnished me with the best oars and sails his skill could provide, and at times I seemed to be in a fair way for getting to sea again, and then an adverse wave would beat me back again, and then all observers, and even the skilful doctor, said I must die. I did not wish to die so soon, although I had no doubt respecting my acceptance with God. The thought of being separated from my affectionate wife so soon after our union (scarcely two years), and leaving her in a cold unfeeling world, with no provision save the promises of our heavenly Father, weighed heavily upon my spirit. Under these circumstances, amid extreme weakness of body, my only consolation was in the cheering promises of the Bible, and in the glorious hope of a better world. I had reason then to bless God, and still have reason to bless him, that I was led to embrace religion early in life. When I was a little more than sixteen years of age, I was enabled to say, 'I know in whom I have believed.' For fourteen years I have endeavoured to serve my God, and he has not failed or forsaken me. I was at last recommended to try cold water; I did so. I began by using a wet towel, well rubbing myself on rising every morning, and drinking two or three tumblers daily. This benefited me considerably. Then I was recommended to your Establishment. I stayed over eight weeks. I regard these as among the happiest weeks of my life. I look to December 1857 and January 1858 as constituting an epoch in my history. I often think with pleasure, too, of those seasons of hallowed enjoyment spent in the delightful exercises of prayer and praise, and reading the Holy Scriptures, which tend so much to promote that harmony of feeling which prevails through the Establishment; also those pure and elevated principles which regulate the whole. Now that I am far away, I daily pray that the blessing of God may attend you, and that many blood-bought souls may be the crown of your rejoicing in the day of the Lord.

"My friends observed a striking change in me for the better on my return, many of whom never expected I should recover. I called upon my late medical attendant to pay his bill. I expected he would have questioned me about the treatment, but he only remarked that he understood I had been to an Hydropathic Establishment. I told him, I had, and where; he then said that he believed a great deal of the benefit persons derived from such Establishments was from the healthy locality of the Establishments. I thought within myself, he admits a great part, but not the whole truth. He admitted that people were benefited by going to Hydropathic Establishments, but he wished to ascribe the benefit to the salubrious air in the locality of the Establishment. Yesterday morning I met him; he said, 'You are looking better, the dry winter has done you good,' and laughed, and then galloped away. I believe in his heart he acknowledges the good I have derived from the treatment, but does not like to say so.

"Again returning you and Mrs. Smedley very many thanks for your kindness, with Christian regards and fervent prayers,

"To J. Smedley, Esq. I am, yours truly, ————."]

I received the following gratifying testimony to the soundness of our natural restorative system, a few days since. The writer, age forty-five, was paralysed on one side, and one leg all but entirely useless; stomach, liver, and bowels, all sympathising with the lowered vitality of the limbs, were in a bad state. The writer has long been restored to perfect health, and his spirits raised proportionately from the prospect of being a cripple and gradually sinking, to his present enjoyment of life and health.

"*L . . . . Cottage, L . . . . January* 4, 1858.

"DEAR SIR,—After a long interval, though I have had many thoughts of you and the long-to-be-remembered *Bank*, I again beg to break upon the silence. I am, thanks be to grace and God's goodness, together with the secondary cause, *Hydropathy*, in very good health—though weak from the former effects of fifteen strokes of paralysis within the space of one fortnight. My leg, too, from which I suffered so much twelve months ago, has ailed nothing since, unless perhaps being more susceptible of cold. My doctors who attended me eighteen months ago, and who told me then they could do no more for me,—that I had better put my house in order, for I might die any moment,—now say they never saw me look better, neither do I think they ever did! God has blessed, and *does* bless, the means under your kind direction to me and my family's joy and comfort, and I assure you I never cease to recommend the Bank and the treatment there pursued. Our dear Miss C. . . . . . ., from whom I received a letter to-day, and myself, never forget in our correspondence The Bank, its proprietors, and the then inmates: if any one with you known to myself, I beg a kind remembrance, to managers and bathmen, &c.

"Yours very truly,

"*J. Smedley, Esq.* J. V. C. . . . . . ."

The following is from a physician to a patient he sent to my Establishment, and is an encouraging testimonial to the efficacy of our treatment:—

"DEAR SIR,—Your letter and the enclosed stamped envelope are before me. I really see no meaning in my copying my own previous certificate, which has already served its purpose. Moreover, that my copy is to be a copy of your copy.—This is trifling, and I must not waste ink over it. Well: but I do, nevertheless, send a certificate of a kind, and which is one for your best interest, and that is, that I am of decided opinion that an important opportunity is now in your hands for attaining a certain most desirable point of your life—that of physical efficiency for your duties as a minister of the glorious Gospel. My present certificate amounts to my conviction that your best thing to do is to follow entirely, as you have done whilst under my care, the directions of Mr. Smedley. Without entering into any question as to the merits of his system of treatment as a system, I am quite certain that it is specially adapted to meet the exigencies of your case. Indeed, I do not know of any other practitioner of the Water Cure from whose treatment I should expect so much permanent benefit as from his in your case. Remember, that a great fault of your present bodily constitution is that of irritation and debility within, and I know that his treatment is especially calculated to correct that, by keeping up a due action on the external surface, without risk of overdoing the thing—as is the case with those who are out-and-out Cold Water Cure doctors. I do seriously advise you to remain as long as possible, and put in force your wonted decision of character. You will never again be under such favourable circumstances for regaining your former physical power. Go on and prosper in your present treatment.

"Yours sincerely, ———————."

Spleen.—The spleen or milt is a spongy viscus of a livid colour, and so variable in form, situation, and magnitude, that it is hard to determine either. Nevertheless, in a healthy man, it is always placed on the left side, in the left hypochondrium, between the eleventh and twelfth false ribs. Its circumference is oblong and round, resembling an oval figure. It is larger, to speak generally, when the stomach is empty, and smaller when it is compressed or evacuated by a full stomach. It is connected with the following parts:—1. With the stomach, by a ligament and short vessels. 2. With the omentum and the left kidney. 3. With the diaphragm, by a portion of the peritonæum. 4. With the beginning of the pancreas, by vessels. 5. With a colon, by a ligament. In man, the spleen is covered with one simple, firm membrane, arising from the peritonæum, which adheres to the spleen very firmly by the intervention of cellular structure. The vessels of the spleen are the splenic artery coming from the cæliac artery, which, considering the size of the spleen, is much larger than is requisite for the mere nutrition of it. This goes, by serpentine movements, out of its course, over the pancreas and behind the stomach, and, after having given off branches to the adjacent parts, it is inserted into the concave surface of the spleen. It is afterwards divided into smaller branches, which are again divided into others yet smaller, delivering their blood immediately to the veins, but emitting it nowhere else. The veins, at length, come together into one, called the splenic vein; and having received the larger coronary vein of the stomach, besides others, it constitutes the left principal branch of the vena portæ. The use of the spleen has not hitherto been determined; yet, if its situation and fabric be regarded, one would imagine its use to consist chiefly in affording some assistance to the stomach during the progress of digestion.

Infants.—Treatment for a young baby when it has taken cold and is a little feverish.—Before dressing it in the morning, have a small blanket, or large piece of double flannel, slightly squeezed out of hot soap and water, laid over a piece of macintosh, either on the bed or on the nurse's lap; lay the child on naked, and wrap the blanket or flannel round it; then rub the child well in it for a minute or two over the blanket; have another blanket dry and warmed by the fire to roll it in, and rub it in that till it is quite dry and warm; then put 180, without collar, on the child, with single flannel binder over the 180, over bowels, all dry. If no spongio at hand, put new flannel, doubled in four thicknesses, down the whole front of the child. Twice in the "day" put the child's legs into 137 for five minutes, and whilst in, use 130; do not undress the child for this 137. Bedtime have a "foment pad" large enough to cover the whole chest and bowels, squeeze it out of hot water, wringing all the water out of it by placing it in a towel, two persons twisting the towel, one at each end; place this pad underneath the compress and bandage, letting it stay on all night; if feet are cold, repeat the "day" treatment as above.

Soap Blanket.—Blanket partially squeezed out of hot soap and water, laid upon a macintosh sheet on bed; lay down on blanket, well wrapping up the person in it, then dry rub as 19½. Forenoon, afternoon, and bed-time also, if not too fatigued, 45.

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THE SUITABILITY OF HYDROPATHIC TREATMENT TO DELICATE PATIENTS IN WINTER IS PROVED AT MY ESTABLISHMENT, where we have saloons and bath-houses so warmed and ventilated, that the patients can have exercise, air, and scenery, without being exposed to the uncertainty of our winter climate. I have been endeavouring to draw the attention of the principal Hydropathic practitioners in this country to the necessity of having saloons fronted with glass, and warmed, and bath-houses well warmed and lighted, under one roof, as mine are, with bath-room, staff, and apparatus, all under the practitioner's eye, instead of the cold bed-rooms, or still colder miserable bath-houses now in use, which are totally unfit for invalids in winter, causing Hydropathic Establishments to be all but deserted in cold weather, to the great injury of the Cause, and delaying the relief or cure of patients who cannot wait till summer comes to have their maladies relieved.

When Hydropathic practitioners renounce physic and allopathic remedies, it is highly absurd to tell the country that hydropathic treatment only offers cure or relief in mild weather. The very defective and even hazardous manner, whether in summer or winter, in which some of the hydropathic treatment is given, is well calculated to confirm the prejudices of the public against hydropathic practice. I wrote to one of the principal hydropathists in this country on this subject, and I give the following extract from his reply, without naming the writer, or giving a clue to his name. He says:—"I think, too, you will find, as I have found, that winter is suited for treatment only to strong persons, and is a course of hardships and privations—good training no doubt—that few will willingly undertake, except from the pressure of necessity." Reading these remarks to my patients in one of the saloons, the sun at the time making the temperature equal to summer, from the large extent of glass with which it is fronted, they prepared and presented me with the following testimonial:—

"*Hydropathic Establishment,*
"*Matlock Bank, Feb.* 5.

"To J. Smedley, Esq.

"Dear Sir,—Having heard the following extract read from Dr. . . . . . . letter to you, viz., 'I have found that winter is suited for treatment ONLY to strong persons, and is a course of hardship and privation,' we the undersigned feel certain that Dr. . . . . . . must not possess a proper knowledge of the treatment as practised by you in this Establishment, or he would not have made such an observation. We all came here broken down in health, and in a very feeble state of body. Some of us had been medically pronounced consumptive, others to be suffering from bronchitis, liver complaints, heart affections, &c., and some were exceedingly nervous.

"We have been in this Establishment during the severest part of the present winter, but none of us has felt your mode of treatment to be either 'a course of hardship or privation,'—QUITE THE REVERSE. Care has been taken to treat us with water heated to a degree most suited to our various ailments. Our over-wrought, irritated, and prostrated nature has been accommodated, relieved, soothed, and gently helped up without sudden shocks of cold, and in *our* cases she has gratefully co-operated with your treatment to help herself into an agreeable and healthy condition. Your bath and sitting-rooms, and saloons have been kept at a proper temperature by steam; and your beautiful crystal palace conservatory, of nearly 100 feet long, has been very delightful for our exercise when we could not walk abroad. In fact, our treatment has proved a *real* *luxury*, at the same time very beneficial. We also believe winter to be the best season for hydropathic treatment, for many cases, on your mild principles. You are at perfect liberty to make what use you may think proper of this testimony, for rectifying false and injurious notions, and making known to many the truth on this important subject.

"Two of us are leaving to-day, cured and grateful.

"We subscribe ourselves,

"Yours respectfully,

"JOHN WICKS, Minister of the Gospel. JOEL HODSON, Minister of the Gospel. JOHN PARROTT, Minister of the Gospel. WM. PARKER, Capt. R.N. MARY STUTTARD. JOHN ELSE. EDWIN ROBERTS. E. W. BROOKS. JOHN A. KENDRICK. CATHERINE HESKETH. ELIZABETH HASSE. THOS. MITCHELL. JOHN WHITTLE. W. LOCKWOOD (recently from a 'cold water' Establishment). SARAH JONES. J. THOMAS. MARY ANN LOCKETT. ELIZA BRADFORD. HENDERSON WATSON."

A number more would have signed, if thought necessary.

A SERMON PREACHED BEFORE ROYALTY.—By her Majesty's command, a sermon preached before the Court, in the parish church of Crathie, on the 11th of October, has been published. The author is Dr. Robert Lee, the Professor of Biblical Criticism in the University of Edinburgh; and the subject is—"What Christianity teaches respecting the Body." Dr. Lee shows that the care of the body is declared in the Bible to be a Christian duty, and that the manner in which this care is to be bestowed is taught by God in the uniformity and constancy of the laws of nature. By violating these laws, an enormous amount of misery and premature death are occasioned. "It is reckoned," says Dr. Lee, "that one hundred thousand persons die annually in England of preventible diseases. In the same proportion more than a million and a quarter must die annually from the same causes in Europe.

"Probably not fewer than four hundred thousand men were killed during the late Russian war. But during the same period ten times as many died in Europe alone from preventible diseases. The slaughter of four millions of persons during three years, in a war against the laws of health! So appalling a fact is surely deserving the earnest attention not only of governors, politicians, and philanthropists, but of all men who profess Christianity, and especially of those who are appointed to teach it; because the laws of health, through disobedience to which such multitudes perish, are God's laws, for He not only ordained them, but He executes them impartially and universally, before our eyes, and upon ourselves." Dr. Lee dared not in such a place, and before such an audience, preach all he knew on the subject, either as regards the hundreds of thousands slain by intoxicating drink, by the theatre, the ball-room, or the race-course, which encourage poor souls to seek in vicious pleasures the gratification of the appetites; much less dare he touch on the tens of thousands lost by the unnatural outrages of the body by physic, setons, blisters, and all the numberless inventions of the doctors.

EVENING CHAT AFTER TEA AT THE MATLOCK BANK HYDROPATHIC ESTABLISHMENT.—The pleasant tea-table chat with our very social and agreeable company at the Hydropathic Establishment will often be remembered when the company are separated far apart, and gone to their various occupations,—some to the East Indies, some to the West Indies, others to Australia, France, Spain, &c. We have had at table at the same time a West India planter, who formerly had his establishment of slaves (so called), but who appear to have been anything but oppressed slaves under his rule. He told us of the coffee, sugar, and cotton plantations, and luxuriant vegetation; the rivers swarming with alligators, and the serpents and the tigers on shore, and the heat and mosquitos; and we were thankful to be in England. We had another at the same time from Ceylon, a coffee-planter, telling us of the cinnamon groves, the beautiful climate, the Bhuddist's worship, the fruits, the absence of an English fog, but with many drawbacks in the shape of mosquitos, serpents, ants, and a thousand forms of insect creation not very agreeable to European nerves. We have had a Spaniard, and others who have joined in the turmoil of revolution. Officers of the army at home and from India, who have suffered from want of a knowledge how to keep their frame in vigour, quite as much as those in active warfare. Some have left us for the scene of war and bloodshed; one for Lucknow, whom we are now anxiously waiting to hear from—of his escape. He will remember our quiet spot, and the glorious scene from our saloon windows over the romantic rocks of Matlock, the cheerful company, the morning and evening hymn, and the moon-lit valleys, as he promenaded in the outer saloon in the May evenings, all so quiet, so rational, so different from the wars of men's passions, blood and slaughter, murder and hellish inventions of torture. From two of our late visitors, one a solicitor in Arrican, on the confines of Burmah, and another from the captain of the *Cœur-de-Lion* at Madras, I have received the letters at the end of this article. The solicitor came from London, broken down in health, unable any longer to peruse briefs or debate at the courts, fearing his days of activity were over, but was so renovated at my baths that he took an appointment in India, and left us in perfect health, two stones weight heavier than when he came with his cadaverous liver disease complexion. Farther on is a letter I have just received from him.

The captain, who saw the taking of the Redan and the Mamelon at Sebastopol, his home is indeed on the sea,—he is rarely off it. The Cape, the Red Sea, the Persian and Indian Gulfs, Bombay, Madras, Calcutta, China, Australia, New Zealand, America, are familiar places to him; and he, as well as ourselves, will long remember the watch-night of 31st December, 1857, which he and his wife spent with us at Lea Bridge. He is a truly Christian man, and with his wife fears no evil, because he believes his Creator will order all things for good to them that love Him, and bring them safe into port when the voyage of life is over. Many wrecks have I seen who have, too late for health, but not too late for their immortal happiness, seen the great mistake they have made in not studying and obeying, in early life, God's laws for health of body and soul.

A late commander in the Royal Navy, forty years at sea, and never during the whole period twelve months on shore at one time, having had an apoplectic fit, has been with us a considerable time; he is for the first time in his life able to see calmly and quietly the purpose of his creation, and that God intended and does intend the happiness of all his creatures, and though mistakes and errors may have been made, there is reconciliation and happiness even with a dilapidated hull and the rigging blown almost away.

CASE OF MODERN ALLOPATHIC TREATMENT.—Mr. W. was taken, about six years ago, when in the West Indies, with a kind of fit, coming on, with a violent palpitation of the heart, and twitching of the nerves of the left side and face, with excessive flow of blood to the head, producing in the first attack insensibility. This Mr. W. considers was brought on by fatigue, excitement, and debility, for which, however, he was bled freely. The attacks continuing, was bled again next day; after that twice more, leeched and blistered, and kept on extremely low diet, so that in a month's time was so weak he could scarcely stand. Returned to England, and after some months was sufficiently restored to health to take a situation as secretary to a public society; but has since, when subjected to continued fatigue and excitement, or much mental exertion, felt the same symptoms return. This gentleman is now just come under our comforting natural treatment, and I can assure him he will regain the lost power of the nerves. *The above was in the first edition of this work, and I am now able to state this patient was entirely restored to health by our treatment.*

REGISTRAR-GENERAL'S RETURN OF DEATHS FROM DISEASE.—There were in the year 1856, 22,080,449 persons living in England, Wales, and Scotland —viz., 10,802,279 males and 11,278,170 females. England and Wales contained 19,045,187 of these souls, and Scotland, 3,035,262. There were 759,201 births, 448,962 deaths, and 179,824 marriages. The following is a list of the number of deaths from the principal diseases in England and Wales in 1856, viz.:—14,160 from scarlatina, 9,225 from pertussis or whooping cough, 13,815 from diarrhœa, 762 from cholera, 15,398 from typhus, 8,213 from dropsy, 48,950 from phthisis or consumption, 7,299 from hydrocephalus, 8,278 from apoplexy, 8,497 from paralysis, 23,946 from convulsions, 12,803 from cardiac diseases, 21,528 from bronchitis, and 22,653 from pneumonia, or inflammation of the lungs. The ages at death were 159,067 under 5 years, 16,165 from 5 to 10, 9,143 from 10 to 15, 26,654 from 15 to 25, 26,371 from 25 to 35, 25.861 from 35 to 45, 25,024 from 45 to 55, 29,353 from 55 to 65, 35,085 from 65 to 75, 28,953 from 75 to 85, 8,273 from 85 to 95, and 548 at 95 and upwards.

HEIGHTS OF ABRAHAM.

DIVISION V.

THE SYSTEM OF HYDROPATHY, CRISIS, &c.

If any person submit themselves to the Hydropathic treatment, who have serious mucous inflammatory action of the viscera, or have much morbid matter in their system from paralysis, old inflammatory attacks, &c. &c., under the idea that two or three weeks' active treatment will restore them, they will be much mistaken, for probably by that time they will be in an *apparently* far worse condition than previously, and may be from crisis quite laid up. If health only partially deranged, a short time and no crisis will well repay the time and trouble of a short trial, and will give important information for the remainder of life. Crisis (boils or eruption) cannot be produced by any Hydropathic treatment or bandages in a healthy person; and just in proportion to the amount of disease, so is the amount of crisis. Some patients, who have not much the matter, may have a slight rash or a small boil or two; some none. As I have observed in another place, the body may be in a very disordered state, simply from weakness of the digestive organs, and the vis vita, or power of life, not being sufficiently strong to cause the proper chemical change in the food after it is dissolved in the stomach, acidity follows, and afterwards fermentation. This undigested matter is taken into the system, building it up with morbid materials, which, if the body is not placed in favourable circumstances for throwing off such impurities, disease and death terminate existence. If patients wish merely to have their general health improved, without caring to be thoroughly well, they should not be anxious for active treatment, nor wear bandages; still the good air, water, and regular habits at an Establishment often raise the power of life, and stimulate the body to throw off diseased matter, even after the return of the patient home; but such an effect is always and inevitably beneficial in the end.

The principle of the water cure is to raise the power of life by natural means, and just as a wound throws off in matter and scales the dead destroyed tissue, and little by little forms new granulations, so must morbid matter be thrown out where it exists to much extent; and this is the only way, and the only principle, in which nature acts in curing. It is easy to swallow medicine, and more agreeable for the patient not to leave home and business; but this inevitably leads to an accumulation of vitiated matter in the system, that not only often prevents the necessity of putting the patient to the inconvenience of leaving home, but takes him out of the world altogether.

Dr. Macleod, of Benrhydding, after detailing some remarkable cases of shattered health from this very cause, and the subsequent recovery of the patients after the perceptible extraction of drugs from the body, gives indisputable evidence of the extraction of mercury, which had been taken some years before; while such drugs as aloes were extracted tangibly, and washed out of the compresses that had encircled the body, making the patient's room offensive with the distinct vapour of the aloes. I think this explanation necessary, from several patients, after coming to my establishment with extensive derangement of the whole system—red tongue, parched lips, constipated bowels, dizziness, languor, &c., and without informing me they only intended staying two or three weeks at most, and being anxious to take all the baths prescribed, having at the close of that time, or soon after arriving at home, found themselves quite unable to attend to any business, from crisis; and being without the proper applications, have suffered much inconvenience. Such a course is, in fact, much like patients with fever, or erysipelas, rising from bed in the midst of it, and declaring to the doctor they must go to business, and will take no more physic; that in fact their business calls them, and they are compelled to go. The allopathic system, however, generally effectually prevents this; because, as one of my surgeon friends remarked, they have to begin with pulling down before they can cure; also adding, "Your hydropathy begins by building up from the first;" which is the case, as the internal organs immediately respond to the natural healthy stimulus given, and the sufferings from crisis are always accompanied, after the first few days, and often before, by a good appetite and general feeling of vigour and lightness. There is no danger with crisis, if the most ordinary care is taken, and all stimulants avoided, nor leeches, lotions, or ointment applied. *No cure can take place in chronic cases without crisis.*

It is further necessary to remark, that none go to hydropathic establishments without a cause, and that cause is, more frequently than otherwise, the inability to find remedies for their ailments elsewhere. They come in a state of nervous irritation, which gives them a false idea of their real strength; and when this begins to be subdued, the body being brought to its natural state, a feeling of lassitude and weakness is the natural result; but this disposition to rest is one of the most favourable symptoms they can have, and is the precursor of renewed vitality.

Nature never cures disease but by crisis in some form or other. Scarlet fever is a crisis to expel inflammatory morbid matter out of the system; and when it is over, and the patient recovered, it is notorious how much better the subject of it is than previous, if the body is not saturated with physic. Small-pox is crisis. That shingles and scarletina also are crises of the same kind, is a doctrine acknowledged by the allopathic practitioners, in the form of counter-irritants, such as setons, issues, and pustules produced by mercurial ointment, &c.; but these are forced crises, and the body is made to produce crisis whether there is vitality or not, and in the places also which the doctor thinks it most convenient or most effective; and with this forced crisis he often draws out the vitality of the body, or of a part, that is never restored. Nature will not be treated like a carpenter repairs a piece of furniture, and it is the height of presumption to attempt such practice. The grand error, the fundamental error of allopathic doctors, lays in not recognising to its full extent the curative powers God has implanted in the body. We frequently hear of practitioners, as they become old in the profession, acknowledge how little good they have ever done by authorised modes of cure. (See letter, page 226, and other similar statements in this work.) I believe, if every doctor of long experience was examined on this point, he would say, as those do I name in this work, that the more experience they have had in the practice of physic, the less confidence they have in its powers of cure, but have seen plainly how often it causes injury. A retired surgeon, who has stood high in this country, observed to me lately that he had practised thirty-eight years, and quite long enough to lose all confidence in the remedies for disease He was himself in bad health, and had been so many years, and never could succeed in curing his maladies; and besides, he said he had the advice of the best physicians, all to no purpose. How often the surgeon sees crisis in nature attempting, and succeeding too, in curing disease of the lungs by abscess; the unhealthy matter is discharged, and leaves the lung sound; the abscess has cured the lungs: the same by the liver; and it is notorious that boils are healthy, as the popular phrase runs. I am asked sometimes by patients if I am prescribing treatment for crisis. I say, no. We endeavour to raise the general health by our comforting system. We neither aim at producing the troublesome and often painful crisis, nor are we alarmed if it comes. If the skin is attended to, the circulation regulated, the viscera got into good order, nature will throw any morbid matter off in the easiest and best way; but we cannot dictate to her where and how it will be done. While we are attempting to improve the circulation and secretions in the liver, a boil or boils will come out sometimes in the posteriors, where we have made no particular attempt to bring out crisis. Sometimes, and whenever it can with safety be done, it appears, nature passes it off by the secretions rather than trouble the body with rash or boils; and we have had patients quite cured by rather active diarrhœa. I have a case of chest disease now being relieved by crisis in the arms, which have been packed as No. 214. Sometimes in such cases a large boil has come in the arm-pit, or near, and cured the patient.

After all, it is impossible to go against nature's laws in curing If boils or rash are necessary, the patients should rejoice that they have vitality enough to cast the matter off; and in the great number of crisis cases we have had, I have never seen anything but good results by the most severe crisis; and never in the most delicate have any evil results followed, but always the contrary.

Our experience convinces us that we cannot push crisis too much, or too quickly get the morbid matter out of the system. Inflammatory matter cannot but be distressing to the sensitive nervous system, and dangerous to the whole structure; and the sooner it is got rid of, the better; although the withdrawal of it, by reducing the nervous irritation, apparently makes the patient appear weaker; but it is not really so, for the patient then only becomes conscious of the real state of the body. We have often to contend against this idea of becoming weaker under the treatment; and patients often do themselves harm by taking an extra quantity of food, under the idea of keeping up their strength, when in fact the state of the body not only does not require it, but from the lowered power of digestion by their state of health, it is positively injurious. When the body is out of order, it is manifest the powers of digestion and assimilation are impaired, and, until the state of complaint is removed, even a usual amount of food must evidently only further overtax the powers of the viscera. People do not overcome disease merely by eating a larger quantity of food. We never fear the complaint of weakness; it is always, in disease, a precursor of improvement in all cases of chronic disease or complaints of long standing. When there is simple functionary derangement, we often find patients begin to get strength in a few days after commencing treatment.

The only point we fear in crisis is the patient leaving us, and applying to medical practitioners when under it. Medical men do not understand it, or will not recognise nature's own curative work; and, if leeches or the lancet are applied, the healthy operation of nature is stopped, and the inflammatory morbid matter prevented finding an outlet where it is the safest, to be thrown probably on to some weak vital organ, and so cause irreparable mischief. I have had cases who have left me with crisis, or crisis has come on after returning home; the medical man has ordered stimulants and flesh meat, to keep up the strength of the patient; these have added fuel to the inflammatory matter in the system, and the leeches or aperient have combined to so lower the vitality, that in one case it was fatal, and in other cases caused many months of suffering, by stopping nature in her work. There is not, I repeat, the least risk with crisis, if only the most ordinary attention is observed as to diet and washing with tepid water, until nature has performed the cure.

The following observations on crisis are from the work of a celebrated American physician, and of others:—

"One most remarkable feature in the water-cure is the crisis, as it is termed. It is said that at Graefenberg it is really amusing to observe with what anxiety it is looked for by the patient. In most cases it proves the certain harbinger of a good cure. 'The patients themselves are constant witnesses of this fact; and it is no wonder, therefore, that they should look forward with pleasure and hope to its advent in their own persons. A patient is no sooner missed from the table, than the question goes round, "Has so-and-so got a crisis?" And if the reply be in the affirmative, the report spreads like the news of a fresh victory, and his friends assemble round him—not with long faces to condole him, but with merry smiles and laughing jests, to congratulate him on his happy fortune.' 'The following allegorical lines from Southey,' says Captain Claridge, 'might with great justice be literally applied by the individual who has passed through the crisis, and been restored to health:'—

'Most blessed water! Neither tongue can tell
The blessedness thereof, nor heart can think,
Save only those to whom it hath been given
To taste of that divinest gift of heaven.
I stopped and drank of that divinest well,
Fresh from the rock of ages where it ran;
It had a heavenly quality to quell
All pain. I rose a renovated man;
And would not now, when that relief was known,
For worlds the needful suffering have foregone.'

"The term crisis applies to any very marked disturbance of the system, or cutaneous change; as the crisis fever, odorous perspiration, odorous urine, vomitings, diarrhœa, hæmorrhoidal discharge of blood, and various kinds of eruption on the skin. In very many cases of cure, there is said to be no perceptible crisis of any kind. There appears to be no very general rule respecting it. In some old and obstinate cases of gout, mercurialism, &c., it may take place as many as from three to five times, before the cessation of the disease and the re-establishment of perfect health."

The "Crisis." By Sir Charles Scudamore, M.D.

"The very important matter of *crisis* is always sought for with much solicitude both by Priessnitz and the patient. He believes that it could not be produced in a healthy man; and that its occurrence is a sure proof that nature is successfully exerting herself to throw off the disease, by the exit of a bad humour from the mass of blood. It is a sort of a wholesale theory, and equally serves for all persons and for every known disorder; and assuredly is the most convenient for one ignorant of medical science. I conceive that Priessnitz must have been gradually led to this idea of morbid blood by the observations which his experience enabled him to make; for, as before explained, he entered into the water-cure practice by accident, and not from tuition. His principles have arisen out of practice as an empiric art, and were not as a precursor first implanted in his mind. He has, in innumerable instances, (so that the contrary forms the exception to the rule,) witnessed the formation of crisis in the progress of the water-cure, amongst which boils take the lead in pre-eminence and importance of character. But the term also applies to any very marked disturbance of the system, or cutaneous change; as the crisis fever, odorous perspiration, odorous urine, vomitings, diarrhœa, hæmorrhoidal discharge of blood, and various kinds of eruption on the skin. It was a fact of ordinary occurrence presenting itself to the mind of Priessnitz, that the great crisis of boils, in proportion to their free suppuration, proved in the highest degree remedial, removing chronic pains and internal sufferings of long standing; and that no marked amendment did take place until the event of some crisis. Also, the additional fact must be mentioned, that very frequently indeed the boil crisis would appear in the immediate vicinity of the disease, sometimes on the very spot. It is no longer surprising, therefore, that the idea of humour in the blood should be strongly confirmed in the mind of Priessnitz, and have grown with him into a rule of practice. The patient very naturally cares not for the absence of scientific explanations, but renders his faith to fact, and to the long list of very extraordinary cures which have been performed, after the failure of regular medical art. But it will not be uninteresting to examine more closely this doctrine of the bad blood, with reference to crisis and treatment. In the case of morbid poisons, as, for example, small-pox, measles, and scarlatina, nature evidently makes a vigorous effort to free the blood from the virus, by producing in the skin a characteristic eruption, attended by a symptomatic fever. After a certain period, health returns, and no reminiscence of the poison occurs. I adopt this illustration to show the blood can in this manner, by the medium of the skin, clear itself of the offending cause, however difficult the explanation may be In the very familiar examples of cutaneous disease, as erysipelas, the shingles, nettle-rash, &c., we commonly refer to the blood as the source of disorder, although we can only generalize our notions; or, by other theory, we may regard these disorders as the offspring of some internal vitiated secretion, as acrid acid in the stomach, or bad bile, affecting the skin by supposed sympathy;—which is equally figurative language, if we are driven to close and searching analysis.

"Boils and carbuncles do not occur in healthy subjects; and when they happen naturally, are always looked upon as indicating a bad habit of body. The surgeon may choose other description, and call it weak and unhealthy inflammation, affecting the outward texture of the body, differently from phlegmon or true inflammation. I will not, therefore, for the sake of language, attempt to dispute the plain notion, so familiarly adopted, of the nature of crisis in the water-cure treatment. The benefit arising from crisis must not be referred merely to the depuratory or cleansing process for the blood. Boils and rashes act as counter-irritants, in the ordinary and most accepted view, and in this way also prove useful; on the same principle that we see advantage derived from blisters, and artificial eruptions produced by external applications, tartar emetic, croton oil, &c.; and even the use of setons and issues is connected with this principle of counter-irritation, equally with the idea of discharging the offending humour from the blood. It certainly happens in this way that much inconvenience must often be sustained by the patient in the progress of his cure; and he must submit to be worse, before he can be better. The occurrence of boils is not, however, invariably necessary to the cure. Nature determines this, and may give another kind of crisis; and even none, that is notable, may be the pleasing fate of some, who still receive every benefit and recover."—*The Crisis, by Sir C. Scudamore.*

OUR TREATMENT FOR CRISIS.—Crisis, taking place simply from the renewed vitality of the nutritive organs, saves us all anxiety as to its being brought to a safe and successful termination, if only the patient will live in the simple manner it was intended we should do, and take the most ordinary care not to expose the crisis to the air or cold water. If even a patient should not observe this caution, no farther bad results ensue, except retarding recovery. The crisis affects so many parts of the body, according to the nature of the complaints of the individual, that only general rules can be laid down. First, when rash or crisis is on the body, or legs or arms, tepid sponging over only should be used, soaping sometimes to keep the discharge cleared away; but care must be observed not to rub the parts, or it will prevent the new skin from forming. The more crisis is kept from the action of the external air, the better. On rising, take a little soap and hot water, and with a gentle hand and flannel pad well wash all matter away; then apply a dry piece of linen over the part affected, and nothing more.

If very *irritable* in the day, undress and quickly sponge the body over with water at sixty-five degrees, and re-dress as above.

If *smarting*, then apply the water at eighty degrees.

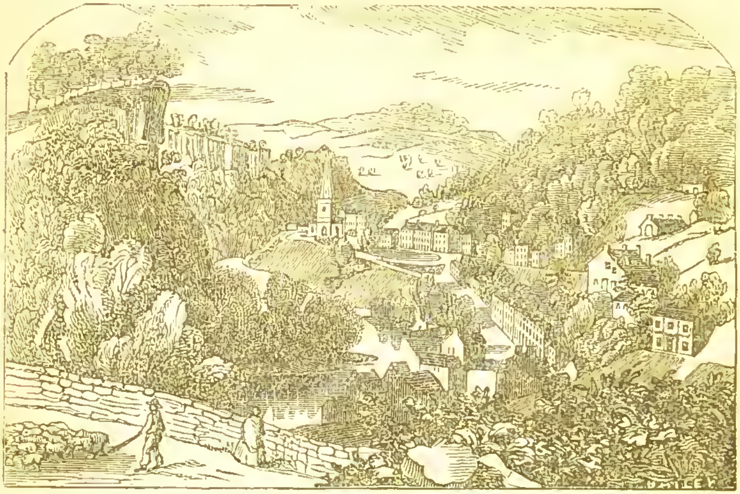
If *burning*, then apply a very gentle warm fomentation, and re-dress as above; *no sponging after:* any cold application will increase the irritation. Have a wet pack, if feverish, for half an hour. No. 39.

Bedtime.—Take off the linen, and put on body bandage (see 173½ bath list) *well wet* in water sixty-five degrees. A little hot water should be kept by the bedside, and if unable to sleep, the above process should be renewed. If too delicate to have the body bandage so wet at night, then keep the wet linen on, with a piece of new flannel over. Abstain from flesh meat until the crisis is well out, and drink pretty well of cold water. Do not keep the body too hot.

When the crisis, from much inflammation in the body, does not subside with the above applications, the patient had better keep in bed, throwing off all bandages, with as light covering on as possible, not to be cold; and have the parts attended to as No. 147. This is the speediest way of getting well. Persons are liable to make the crisis worse by rubbing the parts. No flesh meat while crisis is on. Any boils that do not break when they show that matter is formed may be lanced, and a wet piece of linen kept on, and renewed often, and the matter sponged out. See bath list, No. 151½. Care must be taken to prevent any of the matter or moisture touching other parts. Some boils appear to be coming on, but stop, and go back; but this effects the purpose, as the matter is taken up by absorbents in coming out of the body.

If crisis is in the legs or arms, apply 151½. 145, 147, 148, as most suitable; No. 143 will relieve the legs, when crisis is out, and when hot. If the crisis does not come out red, which it should do, and not a dark colour, use Nos. 140 and 143 alternately, until it does so. When the parts have done discharging, then the application of silk gloves or stockings, or if on body, a piece of hosiery woven silk should be applied, and kept on the parts night and day, and not removed until the skin is formed and healed; the silk should be kept constantly wet by sponging with tepid water—should have thin, dry merino gloves and stockings over the wet silk; some thin, dry flannel may be put over the silk round the body; the silk covering must not be removed, but if the crisis matter comes through, it can be sponged off with hot soap and water. The crisis limbs are best kept in a reclining position, as the new skin and veins are weak from the renewal. When crisis is pretty well over, rest entirely from all treatment, except a tepid wash over in morning, and a sitz No. 106. Better remain in the same locality, as removing to change of air may further retard recovery.

Crisis is always and inevitably beneficial, and will repay for the patience required in passing through; but patience is required in old chronic cases, to wait till perfect recovery. We have seen many astonishing cases of restoration after many years of suffering previous to having crisis.



MATLOCK BATH, FROM ABRAHAM'S HEIGHTS.

The following quotations are from Dr. Gully's work, *The Water Cure in Chronic Disease* (London, Churchill, price 2s. 6d.), a work containing a mass of important information, not only on the Water Cure, but on the whole structure and functions of the body.*

"DISEASES OF THE COLON—CONSTIPATION.—On no subject of medical concern is there more misconception and prejudice among the laity than on that of the depuratory office of the bowels. And no wonder; within the first twenty-four hours of mundane existence an aperient drug is introduced into the digestive canal, and that irritative action, thus commenced, is looked on as necessary to the well-being of the individual, by those whose office it is to watch over his younger years. By the time he has reached the years of self-guidance, the same necessity is impressed on his own mind, both from the mental habit, and from the organic craving of the lower bowel itself, for the daily or weekly excitation of the aperient—a craving which induces a sympathetic one in the brain, which *will*

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* I have received the following kind note from Dr. Gully, giving me permission to make quotations from his works:—

"*Malvern*, 18*th Sept.*

"SIR,—I cannot object to you making extracts from my writings, provided they are acknowledged in the text or in a foot-note, as is usual. I wish you success in your undertaking, and am,

"Yours faithfully,
"J. M. GULLY."

not be satisfied until the old irritant is applied to the old spot. No matter how perfectly well the person may be — appetite, sleep, spirits, walking power, in the best order, no pain or ache present, no sense of fulness of the bowels; yet is he haunted by this vision of constipated bowels; all must go wrong, if all be not already wrong, unless his bowels are relieved: they were open yesterday, the day before, and for a year past; but not having been open on this precise day, the worst must happen. How hard, all but impossible, it is to drive into the understanding of patients that all this is error, every man of physiological education can say. It would seem as if people lived to have stools, and not had stools to live. These last seem, with large classes of English society, to be the alpha and omega of earthly existence, the one thing of never-failing interest, the much-loved object of daily and hourly solicitude; all the gigantic efforts of the reasoning faculty, all the empyrean flights of the imaginative faculty, are postponed for the elevating function of evacuating the bowels!

"It is sad folly, all this anxiety about the bowels; and much of it is at the door of the patient who has grown up in it. But the fault is also shared by great numbers of the lower class of medical men, called surgeon-apothecaries, who either do not know the physiological merits of the subject, and act in ignorance, or else are too indolent steadily to resist the patient's prejudice for the patient's good. These, the ordinary attendants of so many families, might do much to abolish this pestilent and intolerably stupid habit and prejudice of purging the bowels—the parent of so many diseases which shorten life, and of so many more which render life scarce worth having. To the non-professional readers of this work *I* will, at least, offer some explanations concerning the office of the colon, which will show them the uselessness and harmfulness of interfering with it, and also how the *natural, unforced* action of the bowels is the only one which is not harmful to the body. After being formed out of the food by the offices of the stomach and lungs, the blood is passed on to the minutest blood-vessels of all the tissues of the body. In these vessels the great functions of nutrition and secretion are carried on—*nutrition* depositing the solid parts, and *secretion* the liquid and gaseous But all the solids, and the greater number of the liquids, are only deposited from the blood for a time—their *status quo* is most transitory. The solids are broken down, and, by the absorption of the veins, again carried into the torrent of the circulating blood. The same takes place with regard to the liquid and gaseous deposits from the blood. Every particle of brain, bone, muscle, sinew, &c., is reliquefied; and almost every drop of mucus, saliva, halitus, bile, &c., is re-absorbed and re-circulated. The chemical elements of all the solid deposits, and of all the secretions, are therefore in the blood. Now there are certain of these secretions which exist for the purpose of carrying off from the circulating blood chemical compounds derived from the breaking down and reliquefaction of the solids of the body. These compounds are called *nitrogenized*, nitrogen being the element they chiefly contain. The elimination in question is effected in the kidneys by the secretion of urine, *and in a portion of the colon by the secretion of the stools.*

"The object which nature has in the secretion of the stools is, therefore, to rid her circulating blood of matters which, being no longer of use for the purposes of nutrition of that body, would interfere with it, if retained in the blood. This is so true, that there are instances in which the colon failing to secrete the fæces, the skin has been made the point of elimination to a most disgusting extent. I have myself seen several persons in whom the exhalation from the skin had a strong fæcal odour from this cause. Moreover, any one in ordinary health may observe that when, from any cause, a smaller quantity of stools than usual is secreted, a larger quantity of urine is passed, and *vice versâ*, nature ridding the blood by one channel when the other fails.

"The fæces, then, are to be regarded as a secretion from the mucous membrane of the colon, just as gastric juice is a secretion from the same membrane of the stomach, the tears from the mucous membrane of the lachrymal glands, the wax from that membrane of the outer ear, &c. In short, their production is exactly similar to that of any other secreted matter of the body; but inasmuch as they are secreted for the purpose of being *thrown out* of the body, they are called an *ex*cretion more commonly than a secretion. Here I would remark, as I have done in several places before, on the mischief of dealing with *names* instead of *acts*. Because stools are called *excrements*, people get it into their heads that they are always there, in the bowels to be passed off, and *must* be passed off, without the slightest reference to the other effects of the means they use for hastening the excretion, and without asking themselves the very simple question, 'Whence come all these fæces?' Yet it is one which, properly answered, would have prevented many a mortal malady, and have saved a world of mental and bodily suffering to the crowds of colocynth-eaters that are to be found in England. 'Whence come the fæces?' Unquestionably from the same source as all the other secretions of the body—*from the blood;* from the blood which circulates in the mucous lining of the colon. Sometimes there are portions of undigested or indigestible food, such as the skins of fruits and the husk of oatmeal, mixed up with them, having been untouched by the gastric juice; but these are adventitious, and not an essential part of the stools. These last, therefore, being secreted from the blood, must derive their quantity and quality from the quantity and quality of the blood at the time distributed in the lining of the colon.

"But as this blood circulates in the blood-vessels which owe their vital irritability to the ganglionic nervous matter with which they are supplied, it follows that the fæcal secretion also depends upon the condition of the nervous matter in question. As in the other secretions of the frame, the first influence of causes is upon the ganglionic nervous matter, which then alters the contractile action of the blood-vessels of the colon, this, again, altering the quantity of blood in that part, and the consequent secretions from it. Thus we see that *the secreting action of the colon depends upon the quantity of blood in its vessels, and the quality of the nervous agency operating upon them.* Now, suppose that a man has a large quantity of good blood in his whole body, there will be amply sufficient for the purposes of secretion in all parts of that body,—for the fæces among the rest Such a man ought to have his bowels evacuated once in twenty-four or thirty-six hours, of between five and six ounces of fæces, and he *will* have them so evacuated if he takes sufficient exercise, does not sleep too long, avoids irritating articles of diet, keeps out mental care and overtoil—if, in short, he maintains his ganglionic nervous system in order. *For remark, that when he does not exercise his will in bodily exertion, when his brain sleeps too long, or, on the other hand, when it is over-worked, excess and congestion of blood takes place in it, and the distribution of blood is rendered unequal throughout the ganglionic nervous system*—the brain itself representing a very important part of that system. The consequence is that blood, being *plus* in the brain and spinal cord, is *minus* in the mucous and nervous tissues of the colon; the secretory power of that bowel is therefore impaired *and the patient is constipated.*

"Suppose the same full-blooded person to eat and drink improper things, the same process of congestion of blood takes place in the mucous membrane and nerves of the stomach, which took place in the brain in the other case, with the addition, very commonly, of the brain congestion as well; the distribution of blood is changed, to the detriment of the colon; *and the patient is constipated.* The causes originating in the brain, and those which begin in the stomach, which I have just mentioned, are the ordinary causes of *indigestion*, and thus it is that *constipation* forms an almost invariable symptom of that malady in persons who are well supplied with blood. But why do the bowels become constipated in those who have *not sufficient* blood in the body? Simply because they do not possess enough of that precious liquid for the purposes of *large* secretion. Nature cannot afford it. What little blood there is in the frame she concentrates in the citadels of life —in the two great ganglionic centres—in the brain and in the stomach, —so that *they*, at least, may not want wherewithal to carry on the two great functions of *nutrition* and *sensation*. She thus deprives the outer skin of its blood and perspiration, and the inner excreting skin of the colon of its blood and stools; AND WE FIND MANY A LEAN, PALE, DRY-SKINNED INDIVIDUAL ALSO A COSTIVE ONE. If such a man's bowels are opened once in two or three days, it is quite enough; *his blood cannot afford more; he* *would be injured if he had more.* If, with this general deficiency of blood, the brain be congested by care, indolence, &c., or the stomach by improper food, this concentration of blood in either of those organs, and this withdrawal of it from the colon, are increased, and *constipation of the most inveterate character is established.*

"We are therefore in condition to state as follows:—

"1. THE FÆCES ARE SECRETED FROM THE BLOOD which circulates in the mucous membrane of the colon, under the control of the ganglionic nerves distributed thereto.

"2. Causes which operate upon the ganglionic nervous system, as it exists in the brain or about the stomach, so as to concentrate blood in those parts, diminish the secretion of fæces by withholding from the colon a sufficient supply of blood for the purpose.

"3. CONSTIPATION, THEREFORE, DEPENDS UPON AN UNEQUAL DISTRIBUTION OF BLOOD, TO THE DETRIMENT OF THE COLON, WHICH IS NOT SUFFICIENTLY SUPPLIED.

"4. Such unequal distribution may occur in a body *well supplied* with blood, in consequence of irritations of the brain or stomach. And it occurs in a body that is *deficient* in blood, in consequence of a law of the economy, which, in such deficiency, concentrates blood in the organs most essential to the life of the individual—the brain and stomach. Now, let us take the instance of the constipation which takes place in a man whose frame is possessed of a good supply of blood, AND SEE HOW THE ORDINARY MODE OF RELIEF BY DRUGS FULFILS THE AIM OF *CURE.* The purgative drug acts first of all upon the ganglionic nerves of the entire digestive canal, irritating them, and inducing an augmented quantity of blood in the blood-vessels of the mucous membrane. The increased mass of blood in vessels which have lost their tone after the first stimulation of the purgative is, of necessity, attended with increased secretions throughout the canal. Among these secretions are the fæces; the colon is stimulated with the rest of the canal, although it may be doubted whether simple *mucus* does not form the greater part of what should be the real *fæcal* secretion; FOR ORGANS THAT ARE *FORCED* NEVER GIVE OUT *NATURAL* SECRETIONS. Still, the end of passing something out of the bowels has been gained, and the whole man feels better. But when all is over, what is the condition of the nerves and blood-vessels? Violent stimulation of both has been followed by extreme exhaustion of both; and as the morbid congestion of the stomach and upper organs of digestion constitutes the basis of the constipation (by withholding blood from the colon), the drug, which has attracted sufficient blood into the *colon* to cause fæcal secretion, has also drawn more blood into the *stomach*, where too much already existed in a congested state. It has, in fact, inveterated the constipation of the lower organs of digestion, by inveterating the congestion of the upper organs. Hence the well-known fact, that after a purgative, the bowels are more bound than ever; and the more strong the drug, the more obstinate the bowels after its operation. Hence, too, the growing necessity for more powerful drugs and doses; the cause in the stomach being rendered more intense by each succeeding one. TO TALK OF *CURING* CONSTIPATION BY SUCH MEANS IS LIKE THE PROPOSAL TO EXTINGUISH FIRE BY POURING OIL ON IT: *IT NEVER WAS SO CURED, AND NEVER WILL BE.*

"All this applies when the brain, congested by care and other mental disturbances, acts as a cause of constipation; for it only acts in such a manner by producing the condition of the stomach which I have mentioned as the basis of constipation. Of course, when both brain and stomach are implicated, the bowels are still more unmanageable. You never see anxiety produce constipation alone: some signs of indigestion are always there as well. In the other instance of constipation in persons who are deficient in blood, the results of purgative medicines are still more futile as regards cure, and still more hurtful as regards the general condition of the body. For only consider that whilst Nature is hoarding up the little blood she has, in her most vital parts, for their functional support, YOUR PHYSIC IS FORCING THAT BLOOD TO AN EXPENDITURE ON FÆCAL AND OTHER INTESTINAL SECRETIONS, WHICH MUST FURTHER REDUCE ITS QUANTITY, and therefore increase its congestive concentration about the stomach and brain; besides further reducing the source whence the fæces come. You thus at one and the same time decrease the blood that is to supply the stools, and inveterate the mal-distribution which deprives the colon of it. How in the name of ordinary reason is constipation to be cured? *It never was so cured, and never will be.*

"No, he who, in treating constipation, has only the colon in his mental vision, will be sure to miss cure altogether. Direct, forcible evacuation from that bowel is all he will think of: he will neither take hints from antecedent and accompanying conditions of other organs, nor look towards the future state of them, nor even of the colon; and the event will be, that the colon is no better, and the other organs worse. That is the history of *all* cases treated by medicine. And as the constipation increases with the increase of disorder in the upper organs of digestion, so these last involve other parts in their morbid sympathies, until the patient becomes a mere bundle of diseased and painfully acute sensations, the ganglionic nerves throughout every tissue and organ of the body partaking of the irritation, which took its rise in those of the brain or stomach, or both.

ENTIRE ABSTINENCE FROM ALL PURGATIVES ABSOLUTELY NECESSARY.—"Should not the drinker be taught to bear the present and passing disagreeable for the sake of the future and lasting good? And so in this matter of constipation the patient must fight against the *imagined* necessity for fæcal evacuation; he must resist the sensations sent up from the viscera, because, without such effort, he will *never* get his bowels into natural and regular action. Every dose of physic he takes is reducing his blood-making power, by further disordering the parts in which that power resides, and therefore rendering more distant the prospect of cure. He must be taught that *no possible harm* can arise from the inaction of the bowels, because, in truth, they have nothing in them. Say that feverishness would arise? But the appliances of the water treatment are especially adapted to keep that down even were there excess instead of deficiency of circulating blood in the body. The patient *must* begin the self-denial of physic at some date or other, if he desires to be *cured:* the shortest date is the wisest, both for himself and his physician. Therefore, *the absolute peremptory abstinence from all purgatives is the first step in the treatment of constipation with deficient blood.* In the other kind of constipation, a dose now and then to satisfy the mental craving may be unwise; but in the kind we are now speaking of, it *mars altogether* the curative aim to take *any.* You may continue the water cure for a fortnight, and then, taking a dose of purgative, you have thrown away those fourteen days: you have to begin again *de novo.* I have seen this folly perpetrated several times. It is only by virtue of the accumulated bulk of stools, that the lower bowel and the muscles of the abdomen are irritated to contract and expel them; in the same manner that a certain quantity of urine must accumulate in the bladder, before this last contracts upon and expels it. But whence is a large bulk of fæces to come every day, or even every second or third day, when there is too little blood in the body? Let constipated people in this plight of body be contented to wait until enough is secreted to open the bowels.

PALPITATION OF THE HEART.—ORGANIC DISEASE OF THE HEART.—"*Heberden's* remark on palpitation of the heart, 'They either require no remedies, or they resist all,' is more epigrammatic than true, when the water treatment is concerned. Ordinary nervous palpitation does admit of *cure* by that treatment, and it is of the first importance to cure it. It is only a symptom of irritation in the great nervous network about the stomach, generated by food, by alcoholic drinks, by mercurial courses, by the presence of worms in the digestive canal; by accumulations in the colon; by retention of the menstrual flux; by mental affections;—all acting on the centre of nutrition, whence morbid sympathies are propagated to the centre of circulation, producing irregular action there Whether such action owns this source, or is attributable to structural disease of the heart, can only be certainly determined by the stethoscope; the 'bellows' sound being the characteristic of *nervous* disorder there. But, after all, the malady to be treated is irritation of the ganglionic nerves at the pit of the stomach. Accordingly, the packing with a wet towel down the front of the trunk, and fomentations of the pit of the stomach with warm, not hot, water, cold sitz and foot baths, are the remedies most employed. Of course, where so great an object as the heart is concerned, it behoves carefully to watch the treatment; in such a case no remedy whatever is safe without minute attention. Thus, the wet towel must be applied, as the mucous membrane and skin are more feverish, and in no case continued for a long time together; there should be an intermission of a few days now and then, and mere sponging, water not lower than 60 degrees, should be in place of the cold shallow bath. The fomentations should be only a good degree of warmth, not hot; neither should any part of them touch the ribs; for in either event they rather set the heart beating. The same applies to the compress, which, however, should be often changed, otherwise it makes the heart irritable. The sitz baths at 60 degrees should be taken for half an hour at a time; they always reduce the pulsations of the heart; and the foot baths cause a derivation, that seldom fails materially to relieve the visceral irritation. In fact, the treatment should be sedative; all vehement reaction should be avoided, since it is necessarily effected by quickening the circulation, which is as necessarily the work of the heart. This is especially the reason wherefore it is improper to drink large quantities of water, which are highly stimulating to the general circulation. I have always directed a large wine-glassful only to be drunk at a time, and not more than from one to two tumblers in the day. To follow the Gräefenberg rule of drinking as much as possible in all cases, would be to verify the accusation which some have brought against the water treatment, that it causes heart disease. Active exercise is also bad. I think it very probable that palpitation of the heart has been induced by the indiscriminate water drinking, and incessant walking, which are inculcated by those practitioners who, themselves lacking thought, draw all their inspiration from the routine of Gräfenberg. But, with care to avoid all revulsive effects, palpitation of the heart is a perfectly curable malady by the water plan, as I have already ascertained by several cases."—*Dr. Gully.*

DOCTRINE OF ACUTE DISEASE.—WHAT IS MEANT BY "GENERAL DISEASE" AND "GENERAL DEBILITY."

By *Dr. Gully.*—"By the term 'nervous system,' the brain, spinal cord, and the nerves proceeding from them, are ordinarily understood; but there is another system of nerves, which, as it is neither obedient to the will, nor cognizant of pain, commonly so called, is rarely considered in the explanation of disease; in which it, nevertheless, plays by far the most important—I may say, the only important part. This system of nerves has been called the 'ganglionic' (from the appearance of small knots or ganglions in the course of the nerves), the 'organic' (as regulating the character of the organization of parts), the 'nutritive' (as presiding over the organs that minister to the nutrition of the body), and the 'visceral,' (as pervading and having its centre in the viscera, that is, in the contents of the chest and abdomen); and I shall use these terms indiscrimately in the course of this essay. Perhaps the most accurate, however, are the epithets 'nutritive,' and 'organic;' for wherever there are organs in the body, or wherever nutrition goes on in it, there are nerves of nutrition to be found. Wherever, too, there is a blood-vessel (and we know not of nutrition without blood), organic nerves accompany it, and regulate its action. In *every* part of the body, therefore, organic nerves exist, as in *every* part of the body blood-vessels exist: the point of the finest needle cannot be introduced into any tissue of the frame without entering one or more blood-vessels and organic nerves. The brain inself, containing, as it does, so large a proportion of the blood of the body, is, in this view, supplied also with a large proportion of organic nerves. The coincidence of nutritive blood-vessels (called also capillary) and nutritive nerves points to some strict organic connexion between them. In fact, it is the presence of the nerves which imparts to the blood-vessels the property of receiving and reacting upon impressions from agents within or without the body—a property to which the name of 'irritability' is given.

"Let not the reader confound 'irritability' with 'sensibility,' another property of *a portion* of the body. Irritability exists in the blood-vessels and organic nerves all over the frame—has its central organs in the chest and abdomen—begets no sensation or volition—is ever in action. Sensibility exists in the nerves of the brain and spinal cord only—has its central organs in the brain and spinal cord—begets sensation and volition, and is suspended in sleep. But, on the other hand, sensibility and sensation are built upon irritability and irritation; as thus—the brain is composed of matter deposited from the blood-vessels, and these are regulated, in the manner and quality of their deposit, by the amount and character of their irritability; therefore, if the irritability be acted on vehemently (as in giving stimulants), the action of the blood-vessels, otherwise called their irritation, is vehement also, and they deposit more than usual of the brain-matter, which possesses the property of sensibility, *and in this way augmented sensation is begotten.* It is important to bear this in mind for the future application to the doctrine of chronic disease—*irritation precedes sensation, sensation is built upon irritation.* The first effect, therefore, of causes of disease—excessive cold or heat, infectious matter, &c.—is upon that nervous system which presides over the capillary or nutritive blood-vessels, and whose central portions are in the viscera of the chest and abdomen—the ganglionic system. It is ascertained by numerous experiments that the first effect of all kinds of agents upon the nervously endowed capillaries is to produce contraction of them—a diminution of their calibre by the fact of their contraction. In other words, all agents are stimulants to them, and bring them into action, and that action is *contraction.* But as all action is effort, such effort must, in a living body, be succeeded by lassitude and exhaustion; and in the case of these small blood-vessels, *relaxation* and increase of calibre is the evidence of this secondary state; and further, it follows that the amount of relaxation will be in exact proportion to the amount of the previous contraction. Of course the condition of the blood as to quantity is affected by these two opposite states of the vessels that contain it. When the vessels contract on the application of the morbid stimulus, they drive their contained blood from them; and when relaxation ensues, the blood rushes into their increased calibre; and the amount of blood thus brought into a part will be, of course, in exact proportion with the relaxation, and this with the contraction, of the containing blood-vessels.

"BUT WHILST SUCH ARE THE CONDITIONS OF MORBID ACTION IN THE BLOOD-VESSELS, WHAT CHANGES TAKE PLACE IN THE BLOOD THEY CONTAIN.

"In the first place, its movement through the blood-vessels of the diseased part is retarded, in consequence of the diminished contractile power of those vessels. There is more or less excess and congestion of blood in the part, an excess which obtains at the expense of other and healthy parts. It is the excess which causes the *swelling* of inflamed parts, their *redness*, their *increased heat* (the unusual quantity of blood secreting an unusual quantity of caloric), and their *painfulness*, the pressure of the excessive blood on the surrounding nerves rendering them irritable, although, as I shall have occasion to show hereafter, inflammation of internal parts may exist without pain (in the usual acceptation of the word) and without redness. In the next place, the chemical changes that go on in the blood undergo modification, in consequence of this excess and retardation of its movement. This is shown by the increased heat already alluded to; and further, if the inflammatory congestion be not relieved, the blood secretes *pus*—the matter of abscess—either in the shape of a collection called an abscess, or the same flows freely from the surface of a mucous membrane, forming a bad kind of expectoration, &c. But the chemical changes in question vary endlessly with the diseased part. In the stomach, there is acid instead of insipid mucus and gastric juice; in the liver there is acrid and dark instead of slightly bitter and yellow bile; from the kidneys, acid instead of alkaline secretion; and so on. The most familiar instance of this, as a signal of disease, is the state of the tongue when the mucous lining of the stomach is disordered. The variety of the secretions there is endless, and each one corresponds with a certain shade of congestion of blood in the membrane that covers the tongue. Judge, then, how numerous are the shades of diseased action in that single tissue of the body!

"Such, then, is the condition of a part when it is in the acute stage of disease. The phases of the process may be briefly stated as follows:—

"1. The application of excessive stimulus to the nervously-endowed blood-vessels of the part.

"2. Excessive contraction of the blood-vessels in consequence, with expulsion of their contained blood.

"3. Exhaustion and relaxation of the same blood-vessels, with consequent excessive influx and retention of blood in them.

"4. Diseased sensation, secretion, and nutrition of the part, consequent on the retention of the blood in the exhausted and relaxed vessels, the vital chemistry being, for the time, improperly carried on.

"These phases apply to all acutely diseased parts whatever—from the small pimple on the skin to the most intense inflammation of the lungs or brain. In all, the same stages occur, whatever the exciting cause may be; whether it be the atom of dirt irritating the follicle of the skin, and producing the pimple there, or the rush of cold air into the lungs, irritating their mucous membrane, and drawing excessive blood into it. From what precedes, it appears that the intimate vital condition of a part in acute disease is one of debility. The blood-vessels have lost their contractile energy, and are oppressed with blood, which they lack the power to throw off. But we must not, meanwhile, lose sight of the fact, that the organic nerves themselves, whose re-action on excessive stimulus has produced all this mischief, are also supplied with and nourished by blood-vessels; and that therefore they, too, are in a state implying diseased sensation and nutrition. In other words, they are exquisitely irritable, but their irritability is of a diseased quality, and not sustained, because they are badly nourished by the blood; the result of which is more than ordinary sensitiveness to the causes which first induced the disease, or to any stimulus whatever applied to the part. *Feeble* contraction takes place, then more exhaustion; contraction again, and so on until *all* power is lost. Thus a man gets a slight inflammation of the mucous lining of the windpipe from breathing very cold air; allows the same cause to exasperate it daily, by acting on the highly irritable but feeble nerves and blood-vessels of the membrane; and, finally, induces the most intense form of inflammation of the lungs—a too frequent illustration of the fact, that the most fatal maladies commence in a 'slight cold.'

DRUG MEDICATION.—"Supposing acute disease neither to terminate in death nor in some complete critical action raised in another than the morbid organ or set of organs, there remains a third termination of it—and that is 'chronic disease.' To this the ordinary mode of drug medication in acute diseases tends most powerfully. I will endeavour to show how. A simple inflammatory action of the stomach, being endowed with the name of 'acute indigestion,' is treated as such; that *name* is treated, the *inflammation* would appear never to be considered—at least it is charitable to suppose so. For what is done? Three or four grains of a highly irritating compound of mercury, called calomel, are administered, the aim being to urge the liver to pour out its bile. After this has remained in the stomach for a few hours, violently irritating it, and calling to its already gorged mucous membrane a further supply of blood, another kind of irritant is administered, in the shape of a purgative saline draught, the aim of *that* being to cause the secretion of a vast quantity of mucus from the whole digestive canal, and especially from the stomach. Now, in this process two things are to be remarked; first, that calomel does *not* stimulate the liver to act, except by previously stimulating the stomach; it acts, and can act only, by extension of irritation from the stomach to the liver; it never *touches* the liver at all—it is physically impossible that it should; and next, that neither the liver can pour out more bile than usual, nor the digestive mucous membrane pour out more mucus than usual, without more blood than usual being present, whence to derive those secretions. Accordingly, after the double stimulation of the calomel and the black draught perpetrated on the membrane of the stomach, there can be no difficulty in imagining the augmentation of blood in it. *Yet the disorder to be removed consists essentially in an increase of blood in that very membrane!* Yet, again, calomel and black draught do certainly relieve a fit of acute indigestion! How is this? It is thus. It is found by long experience that a free flow of bile and mucus from the digestive canal and liver is the kind of crisis which Nature chooses in order to relieve the upper organs of digestion. Autumnal diarrhœa is a never-failing instance of this. And as it is certain that, in acute dyspepsia, those upper organs are disordered (however uncertain or erroneous may be the precise notions of the disorder), the attempt is made to imitate the natural relief by expediting it. An enormous quantity of blood is attracted to the stomach directly, and to the liver indirectly; and the vessels containing it relieve themselves by forcing out the bile and mucus in extraordinary quantities. *A forced, false, and imperfect crisis* is thus produced, and all seems quiet again.

"*Seems* quiet again; for it is impossible that such unnatural and vehement stimulation can be applied to the organic nerves of the mucous membrane without exhausting their energy,—it is the law of all living bodies; therefore, although the gorged vessels have relieved themselves by their extraordinary secretions, the nerves, by whose energy they should recover their healthy calibre, fail to afford such energy. In this state of things, nothing prevents the accumulation again of blood in the same vessels: the very first meal after the physic may do this, or it may be a day or two of feeding, or a few days of mental or physical exertion; for these, too, are causes of acute dyspepsia. But whatever the exciting cause, this second accumulation takes place still more readily than the first, the organic power of the part having been weakened; and lo! another fit of indigestion, and the same calomel and black draught as before. But this time it is not quite so acute in character as formerly.

The organic tone of the blood-vessels is diminished, in consequence of the exhausted state of their nerves. The organic sympathy between the vessels and the blood they contain is diminished, from the same cause; add to which, that in the interval between this and the former attack, the membrane of the stomach has not been in condition to afford strong gastric juice, digestion has been of a character not to make good blood, and the want of this operates on the vessels of the diseased membrane. So that, looking to the vessels themselves, to the nerves which influence them, and the blood that circulates in them, the whole of the morbid organ, or part of organ, is in a still lower state of vitality than before. Nevertheless—and this must never be lost sight of—this diminished vitality in the portion of the diseased stomach is a cause of great irritation elsewhere. The phenomena of headache, fever, &c., are not so intense as before. But although the pain of head, heat of skin, &c., are not such *prominent* signals of the stomach disorder as before, that is because their vitality is diminished; they do not respond with the same vigour and acuteness to the digestive irritation as on the first attack. Still, the mischief, both in the stomach and the brain, and its nerves, as well as the skin, has advanced; their minute action is further than ever from the standard of healthy life. The *two forced, false, and imperfect crises* have left the stomach in a more irritable and more feeble condition than ever. But what of that? Relief has been procured, speedily and with small trouble. Business and pleasure have scarcely, if at all, been interrupted; the only disagreeable has been the taste of the physic, and perhaps a little griping of the bowels from it. The patient knows not of, and the prescriber cares not for (if he knows), the small spot of lingering irritation that is left behind, to be again lighted up and again extinguished by forced deluges of bile and mucus, until the stomach itself passes from irritation into disorganizing ulceration or cancer, and extending its morbid sympathies to the brain, spinal cord, skin, and lower bowels, kills the patient with apoplexy or palsy, or allows him to drag on life, a prey to the miseries of hypochondriasis, to piles and rectum disease, or to an inveterate skin disease.

"The extension of chronic disease is either *occasional* or *permanent*; and the frequent repetition of the former leads to the latter. Thus *chronic irritation of the liver and stomach* causes occasional flushing of the face and headache—indications of surging blood towards the head—the intervals between which gradually become less and less palpable, as the establishment of the condition in the head, which causes them, proceeds. It is a sort of warning given before another organ, the brain, becomes permanently involved in the mischief of the one first affected. The agent by which this extension takes place is the nervous system; but both occasional and permanent extension may take place without the intervention of *animal sensation* —as when chronic irritation of the digestive apparatus causes a periodical increase of discharge from an external ulcer, no increase of pain or other sensation attending; or when irritation of the stomach acts slowly but incessantly on the heart, producing therein organic mischief totally unsuspected, until examination after a sudden death reveals the fact of long-standing disease in both organs. Very frequently, the worst cases of indigestion are those which produce no pain, no malaise even, but in which the body wastes in atrophy. The deposit of tubercles in the lungs from chronic disease of the digestive organs is another and too frequent illustration of this fact. In such cases, there must still be transmission of sympathy, of sensation; and, inasmuch as the *animal* part of us is not aware of the transmission, save by its results, it follows that the sensation propagated from one diseased part to another must have been an *organic sensation*, as contradistinguished from an *animal* one.

"Referring to the fact before mentioned, that wherever there is a blood-vessel, or wherever nutrition goes on, there are organic nerves, the explanation of this organic sympathy, or sensation, will be sufficiently clear. The universality of these nerves and blood-vessels in the body renders the extension of organic irritations from one of its organs to others a very ready and, indeed, an inevitable phenomenon. Unless you can find medicines of such character, and in such amount, as, when applied, to give to the blood-vessels the exact degree of contractile power that shall rid them of the blood which oppresses them, *and no more*, you either do nothing or mischief. If the stimulation you thus apply be too small to give the vessels the power in question, not even temporary relief ensues. If it be excessive, which is usually the case, greater exhaustion than before follows, and matters are worse than before. The consequence is, *at the best*, a hap-hazard practice, and, *at the worst*, a mischievous practice—the latter, alas! being the rule; for how is it possible to hit the *precise* stimulus?

"Such is the mode in which the ordinary medicinal treatment becomes a cause, and maintainer, and aggravator of chronic disease in the internal central organs of life—whence the mischief is propagated to any other organs of the body."

DR. GULLY ON THE LOWERED POWER OF THE GANGLIONIC NERVES, OR NERVES OF NUTRITION.—

"With the deranged ganglionic power, deranged secretion takes place, as we have seen, in the stomach itself. But the same holds with regard to the membrane which lines the fauces, the mouth, the tongue, and the eyelids; for it is a continuation of the same which lines the stomach. Accordingly, we find in dyspepsia either *deficient or diseased spittle*, very frequently thick and tenacious, less frequently thin and acrid—the former in mucous, the latter in nervous indigestion. The spittle also tastes acid, bitter, metallic, sweet, mawkish, &c.; which, no doubt, is owing in part to the disordered sensation of the nerves of taste, and partly to the morbid secretion. Further, the vapour from the membrane of the throat and jaws is more or less fœtid, causing a tainted breath; though this symptom is often wanting. For a like reason, namely, the congestion of the membrane in question, dyspeptics are much liable to sore throat, both relaxed and inflammatory, from variations of weather. Following the membrane from the throat forwards, it covers the tongue—the well-used indicator for the doctor. To go into details on this point would be tiresome, and I shall content myself and the reader too, probably, by stating the general result of my experience of the tongue as a symptom in chronic indigestion:—

"1. When the tongue is not much, or not at all, increased in redness or volume, but has a thickish whity-brown fur upon it, without any great amount of dryness, we may infer that the stomach irritation is of the mucous membrane, and not of an intense nor ancient character.

"2. When the fur in question is slimy, and the tip and sides of the tongue that are uncovered by it present a vivid redness, the dyspepsia is of the mucous kind, is intense of character, and is of longer duration.

"3. If, with this last appearance, the fur be yellowish, though more dry, the liver and duodenum are involved in the dyspeptic disorder.

"4. When the tongue is clean, but vividly red, with the papillæ at the tip elevated, and of the ordinary moisture, a recent nervous dyspepsia may be predicated.

"5. When this red tongue is dry and glazed, a more intense degree of the dyspepsia exists.

"6. When the very red tongue has a slight degree of whitish fur, and is enlarged in volume, it bespeaks a very intense nervous dyspepsia, sufficient to involve the brain, which, in such case, is congested.*

"7. The most intense degree of nervous dyspepsia, however, shows a considerably enlarged tongue, the face of which is split into furrows in all directions, so deep sometimes as to give the appearance of several small tongues just holding together by their edges.

"8. When nervous and mucous irritation are both intense, and have endured for a long time, the tongue is red at the tip and sides, covered in the centre with a very thin, white, shining mucous coat, and is enlarged. This *silvery* tongue (literally, not figuratively) denotes a great amount of long-standing dyspeptic irritation to be eradicated. It is a common tongue with hypochondriacs, especially such as have undergone courses of mercury, and is always connected with morbid action of the brain. Other peculiarities of the tongue are its *indentation* at the sides, which implies its *augmented volume*, and pressure against the teeth; and its *tremulousness* on protrusion, which usually indicates nervous dyspepsia, that has involved the spinal cord. But of the signs above mentioned, one of the most important is the increased size of the tongue, which so often goes unnoticed. Yet have I seen cases of the most distressing indigestion, where the thickening of the tongue was the only sign it afforded, being in colour, moisture, and cleanness perfect; and, what is more curious, in these cases the dyspepsia diminished with the diminution of the tongue, which, however, became *furred* and rather clammy; seeming to show that this latter kind of tongue is that of a *minor* degree of stomach irritation It is too much the custom to look for fur of the tongue as the only sign of the chronic diseased digestion; whereas it is the accompaniment of the least tedious and intractable forms of it. Your silvery or your clean, red, swollen tongue is far more difficult to manage than the ordinary foul 'wash-leather' tongue.

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* This enlargement of the tongue is so strictly connected with stomach irritation, that the tongue will sometimes swell after each meal, and decrease when digestion is over; in coincidence with the excitement or rest of the digestive organs. Moreover, a process of the water cure will cause a contraction of the tongue for the time, by decreasing the stomach irritation. A medical gentleman now under my care has remarked both these facts, and reported them to me.

"The *gums and teeth* afford signs of dyspepsia; the same mucous membrane which covers the tongue, and lines the stomach, passing over the gums, dipping down the sides of the teeth, and sending a pulpy prolongation by the root of each tooth into its centre. This arrangement renders it sufficiently easy to explain the *redness, swelling, tenderness, sponginess, bleeding, and fœtor of the gums;* symptoms which attend, in great or small array, most forms of indigestion, especially of the mucous character. In nervous dyspepsia, the gums often lose their nutrition, and shrink from the teeth, leaving their roots bare. Neither is it difficult to comprehend how, with such a prolongation of the mucous membrane, *aching*, *decay*, and *discoloration of the teeth* occur in dyspepsia. Besides this, the nerve which passes directly from the brain to the stomach sends branches, as it goes down the throat, to the jaws, which branches give out a twig of nerve to each tooth. It is easy to see how a draught of water, diluting some acid liquid, or allaying some exasperated inflammatory action in the stomach, may almost immediately soothe 'a raging tooth' in which no trace of decay could be found to account for the pain. Many a noble grinder has been extracted, when the more pleasant operation of swallowing some iced water would have allowed it to remain in the jaw, and do good service for years to come. At the point where the inner mucous membrane ceases, and the outer mucous membrane, or skin, commences—at the lips—there is, frequently, accumulation of blood in the spongy tissue which constitutes them. This *fiery red, spongy lip* occurs in recent mucous disease, or in nervous dyspepsia, at any stage; it goes with the red and spongy gums. Sometimes its covering membrane partakes of the nature of skin, and throws off mucus, which coagulates in the air, and forms dry flakes on the lips. But when dyspepsia has been of very long standing, and has invaded the structure of the duodenum or liver, we have the lips at first marbled red and white, and as the disease predominates, the white predominates, the lips, the lower one especially, becoming blanched, waxy, and hard. This is the old drunkard's lip, and bespeaks irremediable mischief. Proceeding from the back of the throat to the nostrils, and thence by the passage for the tears to the eyes, the mucous membrane lines the eyelids, and covers the eyeballs to the extent of the portion called 'the white of the eye.' Hence the *bleared, suffused eyes* of many dyspeptics; the *gorged, thickened*, and internally *red*, and externally *dark eyelids;* the inflamed glands at the roots of the eyelashes, accompanied by deficient or *thick gummy* secretion there. And as these two surfaces—the inner eyelid and white of the eye—work upon each other, the result of their congested state is painful action, producing flow of tears, the whole going by the name of '*weak eyes*,'—a symptom of very common occurrence in chronic indigestion.

"*Itching of the nostrils, dryness*, or, on the other hand, *excessive distillation* from them, *irregular sense of smell*, all which take place in dyspepsia, are accounted for by the extension of the gastric mucous membrane to the nostrils. When the membrane is gorged and thickened, the nerves of smell spread over it are oppressed in their function, and *deficient sense of smell* is a dyspeptic symptom. The same connexion of membrane renders dyspeptics very liable to take cold in the head—that is, to have the lining of the nostrils gorged with blood, as the secondary consequence of external cold.

"Running up from the back of the throat to the *Eustachian tube*, which is the avenue thence to the inner ear, the mucous membrane here, also, is liable to variations with that of the stomach. It may become *dry*, and then there is *burning* pain and *acute sense of hearing;* or it may become gorged with blood, swelled, and stopping up the passage, produce one species of *deafness*. Irregularity of hearing is a symptom very often complained of by dyspeptic patients. Finally, the gastric mucous membrane passes over the spongy bones at the back of the nostrils, and reaches and lines the hollow space which separates the two plates of the bones of the forehead—*the frontal sinus*. This is the seat of *sick headache* and of *bilious headache*, as irritation of the membrane of the stomach itself, or of its extension to the liver, prevails.

"So far, it will be perceived, the symptoms of dyspepsia are explicable by the continuation of the inner surface of the stomach. But, in thus tracing them by continuity of membrane, it should never, for an instant, be forgotten that the sympathies, healthy as well as morbid, between the different portions of that membrane are due to the similar nutrition of them all under the direction of the ganglionic nervous system. It is the nerves of this system which should be ever present to the mental eye of the practitioner when he beholds, in the various signs I have detailed, evidences of chronic dyspeptic disorder. Failing in this, he falls into the worst errors of ontology, treating names instead of states of action, and putting aside as non-existent the organic sensitiveness of the most sensitive membrane of the body—the mucous membrane of the digestive organs. We know not of such membrane without myriads of nerves of organic life entering into its intimate texture, and regulating all its vital actions. Not a tear distils from the eye, nor a drop of the wonderful gastric juice from the lining of the stomach, save at the urgency of the ganglionic nerves which supply the membrane of either organ."

DR. GULLY ON THE PLEXUS OF GANGLIONIC OR NUTRITIVE NERVES OF THE STOMACH

"Around and especially underneath the stomach, there is a thickly meshed network of nerves of organic life, from which, after infinite subdivisions, myriads of twigs proceed into the substance of the stomach, and endue its inner or mucous membrane with *organic* sensibility and secretorial power. Intertwined with this network are nerves from the spinal cord and brain, whose office is supposed to be the conveyance of sympathy and *animal* sensation to and from those organs and the stomach: the quantity of these nerves of communication varies in individuals. Now, by *nervous* indigestion I mean those symptoms which indicate irritation of the nervous network about the stomach; and by *mucous* indigestion, those which point at the lining membrane of the stomach as the seat of the mischief. Such a distinction unquestionably exists, and influences the treatment and the result; but, as may be readily conceived, where in one case the roots of the nerves, in the other the extremities, are points of disorder, one ofttimes runs into the other, and each at all times more or less affects the other; the nervous irritation occasionally disordering the mucous surface, and the latter, when exasperated, involving the whole plexus of nerves, and, by the junction, exciting a most formidable species of dyspepsia. Cases of nervous indigestion are very common in persons of business, and of active and anxious minds—a large class in English society. The usual mode of treatment is to add fuel to the fire at the stomach, in the shape of tonic and alterative medication and stimulating diet. Yet is it not the less true that the patient must be made *apparently weaker* in order to be made *absolutely stronger*. That irritation of the stomach nerves which disorders the brain, now causing violent impulsive and fictitious energy, and again tremblings, must be reduced; and, this done, the brain loses its old irritant, and returns to what it really is—a very weak, disabled brain, sending a very small amount of *sustained* energy to the limbs. This *lowering* part of the process is affected by the fomentations, wet-sheet packing, and diet, which, while they seem to enfeeble the brain, relieve the viscera from oppression, and enable *them* to act more forcibly and healthily. Hence my saying that the patient is 'absolutely stronger,' though 'apparently weaker:' *real strength* is to be found in the healthy viscera alone.

"Six months is a sufficiently short period to conquer so slippery an antagonist as a morbidly nervous stomach, which has generally endured for more than as many years; and I would caution the reader against recorded cases of the disease cured in five or six weeks. Such cases never have occurred, and never will occur, save in the advertisements and pamphlets of charlatan writers.

"The same nerves of the great ganglionic network, situated at the pit of the stomach, which supply the latter, also by branches supply the liver; and the same mucous membrane which lines the stomach extends to line the duodenum, and thence, through the common gall-duct, to line every one of the numberless ramifications of it in the liver, terminating, after infinite subdivisions, in the minutest points, where the great work of biliary secretion goes on. In the liver, therefore, as in the stomach, we have to view two kinds of derangements—one dependent on disordered *nervous* supply, the other on fixed *mucous* irritation. As regards the *duodenum*, we have no means of ascertaining its nervous disorder as distinguished from its mucous inflammation, which is one of the most formidable and intractable of digestive diseases. Still, as *duodenitis*—as chronic inflammation of the duodenum is called—never exists apart from disorder of the liver, I speak of both at once, only stating what additional signs mark its co-existence with diseased liver; which *may* exist without duodenitis. The sympathy between the brain and liver is one of the strongest in the body, and, as has been said, strong passion is a very common cause of a bilious attack. Hence, in chronic biliousness, the activity of the brain, as shown in great amount of exercise, and in the consideration of exciting subjects, should be avoided.

"RHEUMATISM.—Cold and damp are the ordinary exciting causes of rheumatism. The proximate cause is an inflammation of the sheaths and coverings of the muscles and large joints. But the predisposing cause is more deeply seated, and requires to be well kept in view when reference is to be made to treatment. Why the rheumatism seizes one joint or set of muscles more than another, we know not positively; but we do know most positively that more or less digestive derangement is present at the time. I *never* saw a rheumatic attack in which such derangement was not present previously to its commencement. And how often does it not happen that a patient racked with pain is *instantly* relieved, an iron band, as it were, taken from his limbs, by a copious vomiting of bile or a seizure of common cholera. Again, what are the drugs which usually relieve the *acute* attack?—*calomel*, which forces the liver to pour out bile; *opium* in combination with calomel, which arouses an amount of irritation within, that sometimes, though very rarely, is thrown upon the surface in a relieving sweat; *guaiacum* and other highly stimulating gums, which act in like manner; and *colchicum*, which, irritating the whole digestive canal, and causing vomiting upwards, and enormous secretions downwards, makes a diversion in favour of the particular phase of irritation that led to the attack, and the pain is relieved. All this points to the relief, to the alteration of action in the digestive organs, and notably in the biliary parts of them, as the great aim in the treatment of rheumatic disorder. Rheumatism is not a mere inflammatory pain of the sheaths of the muscles; it is a certain kind and amount of digestive irritation exhibited by a certain kind and amount of fibrous inflammation. Any other view of it leads to the most absurd and disastrous treatment. I have often observed that when the pain is confined to one or two joints, it is harder to get rid of; as if the concentration of visceral sympathy on these two joints rendered its removal to the entire skin more difficult. Age has also some influence on the length of treatment: after the fiftieth year, one is obliged to spread the treatment over more time, because the body is not so apt for strong reaction. I have noticed that women are longer in recovering than men; probably from the *neuralgic* element entering more into the essence of the disease in them; for *that* again influences the time of treatment, that form of rheumatism being more tedious than the purely fibrous kind. But in any case, it is better to look forward to a somewhat long treatment, which is both safer and more sure,—safer as regards the nervous system—surer as regards the eradication of the visceral irritation. Altogether the time may be said to range from three to twenty months.

"WHENEVER A PATIENT UNDERTAKES THE WATER CURE, WINE AND ALL OTHER ALCOHOLIC STIMULANTS ARE WITHDRAWN TOTALLY AND AT ONCE; yet I *never* saw the smallest inconvenience, still less danger, follow. He only exchanged a less for a more natural stimulus.

"*It is upon the organic power enjoyed by every blood-vessel in the body, a power represented by the ganglionic nervous system, and having its centre in the viscera, that the water cure operates; and it is by it that the water cure produces its results.* It is by the liberation of this power from oppression, and the restoration of its energy, that the water cure rouses in it those salutary efforts which constitute the *only* means of obtaining *permanent* cure."

SYNCOPE SENILIS, ARISING FROM GASTRIC IRRITATION. By JOHN HIGGINBOTTOM, Esq., F.R.S., *Fellow of the Royal College of Surgeons. Read before the Nottingham Medico-chirurgical Society.*—I have given the name of "syncope senilis" to this affection, particularly to direct the attention of the profession to the aged. The same complaint is common to all ages, but in a more aggravated form in infancy and old age. I am not aware that the affection has been specially noticed by any author, except under the head of indigestion, and the sufferers themselves often call it a bilious attack. I do not think that the symptom of syncope is so apparent in infancy; and I believe in middle age the attacks are slighter, and not often serious. The syncope in old age is very apparent, and is the first symptom requiring prompt attention; for if remedies are neglected, the complaint becomes sometimes much aggravated, and is followed by convulsion and death.

It is about thirty years since I first noticed particularly the syncope senilis. The subject was about seventy years of age. I thought at that time it was a precursor of an attack of apoplexy, the patient having had a slight paralysis when about twenty-three years of age, which affected him slightly through life. I was glad to find, on his recovery, that there was no increase of his paralytic symptoms. Since that time I have often observed the same syncope, unattended by any permanent ill-effects. My patients have been from sixty-eight to eighty-six years of age; the youngest sixty-eight, the oldest eighty-six. I am not aware that they have laboured under any organic disease whatever; but we all know, that at an advanced age the brain and heart, the nervous and vascular system, are frequently more inactive, and in an impaired condition. In the cases I have attended of syncope senilis, gastric irritation appears to have been the sole cause of attack. At that advanced age, mastication of the food is very imperfectly or not at all performed, for want of teeth; solid animal food has been eaten when the stomach has been in an unfit state to assimilate it, usually after having had a longer walk than the patient has been accustomed to, or had more muscular exertion than usual, so as to produce fatigue, and sometimes after exposure to cold; all which tend to weaken the power of the stomach. On this account, the food remains an indigestible mass in the stomach, and gives rise to gastric irritation, producing syncope and convulsion, which sometimes follow, often slight at first, but becoming more formidable, or even fatal, if proper remedies are not promptly used. I was called to a patient about three o'clock in the morning, his wife having been awoke by his hard breathing and noise in his throat. She found her husband was in a fit. I was directly sent for. When I arrived he had partially recovered, but very soon after, he had a second fit, which had the appearance of a slight attack of epilepsy, attended with convulsion, but had no bitten tongue, as is usual in severe attacks of epilepsy. As soon as he was sufficiently recovered from the attack, so that he could swallow, I give him half a drachm of the powder of ipecacuana with fifteen grains of bicarbonate of potass, which was followed by full vomiting; he ejected lumps of solid beef, which appeared to have been swallowed, or rather bolted, without having been masticated at all; one of the pieces, I observed, was about an inch long and three quarters of an inch in thickness. Although the food had been taken into the stomach about sixteen hours, the acute corners and edges of the beef appeared as if just cut with a sharp knife, not the least digested. No further remedy was required after the emetic, but attention to the bowels, which he reluctantly submitted to, saying he was quite well. In a month afterwards he had another fit of a similar nature. He fell down in a moment on the floor, and remained in the same state as in the former case for half an hour; the same remedies were resorted to as before, and he recovered quickly. I expect the patient will have a return of the syncope, as he is very wilful, and will not attend to any means of prevention. This patient was the youngest, being sixty-eight years of age. Previous to the first fit he had been using much muscular exertion, still being active in business.

Another case is that of an old patient, of eighty-six years, who at intervals of a few weeks had several similar attacks of syncope. After the last fit, attended with slight convulsion, I was induced to think it had been occasioned by taking solid food, which was swallowed after imperfect mastication; on that account I forbade him the use of animal food altogether. This regimen he has now strictly adhered to for some months, except a few times having taken a small quantity of tripe. He has had no return of his fainting fit, a much longer time having now elapsed than the interval after which he had several of the previous attacks. I would make an observation here, as a contrast to the former case I have related in the younger man, that at a more advanced age the patient does not recover so quickly from the attack, but requires particular attention to the digestive organs for some days, with gentle aperients, and saline medicine in a a state of effervescence. (*Aperients are unnecessary and injurious. I recommend exciting the throat with a feather, or mustard and water, to produce vomiting.—J. S.*)

It is not unusual for even young men to have similar attacks from indigestion, when sudden syncope for a short period comes on, recovery taking place in a few moments. The same attack at an advanced age, I presume, would be attended with aggravated symptoms, such as those I have witnessed. The lamentable illness and death of the Duke of Wellington appears to me to have been a case of "syncope senilis," which became aggravated, and terminated fatally. In the "Life of the Duke of Wellington," by Stocqueler, it is stated that "the health of his Grace had been unusually good for some days, and on Monday, the 13th of September, it was remarked that he took a longer walk than usual through the grounds attached to the Castle." *The Lancet* of the 16th October, 1852, in the leading article, says, "During some day preceding the 14th September, 1852, the day of the Duke's death, there had been a hot midday sun, a considerable wind, chiefly from the north, and the evenings and nights were cold and chilly. The thermometer, on the night preceding the fatal event, was only six degrees above the freezing point; on the preceding day it had been up to ninety-two degrees Fahr. No precautions were taken to obviate the effect of such a change on the aged and necessarily weak system of the Duke, and the pallor of his countenance observed on the preceding Sunday showed that this influence was telling on the circulation. The stomach was ill prepared to receive a hearty dinner, and the difficulties of that organ were further increased by receiving a considerable quantity of food imperfectly masticated, in consequence of the Duke's loss of teeth." . . . . . "He took for dinner, *mock turtle, turbot, venison*, and *pudding*." It is further added in *The Lancet*, "It is probable that had the Duke's stomach been relieved by vomiting in the early part of the morning, he would now be with us; it is even probable that such an effort, if successful, at nine o'clock might have saved him; but every hour added to the exhaustion, and rendered such an act difficult."

Dr. Marshall Hall observes in a paper in *The Lancet*, of October 30th, 1852, "On the malady of the late Duke of Wellington:"—"It is obvious that if efficient vomiting could have have been induced, the offending cause of this lamentable malady would have been removed, and all might have been well; he would, humanly speaking, still be with us. We have no evidence that the Duke of Wellington had any organic disease of either the brain or the heart. It is to be regretted that there was no post-mortem examination."

It might be thought by some individuals that abstaining from animal food at the period of old age might be attended with the loss of health and strength. I had an instance in a relation of my own family, who, at seventy years of age, quite abstained from animal food, and also from wine. After the lapse of ten years, when at the age of eighty, he was requested by his relatives to resume his animal food and wine, he excused himself from taking either of them, by saying he did not want them; for he was very healthy, and in good spirits, although very thin in body. He lived till he was nearly ninety years of age. This old gentleman, I apprehend, would have been a likely subject for the syncope senilis, had he been in the habit of taking solid animal food, which he could not masticate, and would most probably have shortened his days. At an advanced age, when the physical powers of the body are declining, and second childhood approaching, and at that period when comparatively little exercise only can be taken, the body does not require the same solid food. Nature points out the use of milk and light farinaceous matter as an aliment, as being more natural, and adapted to that period of life; such food alone is sufficient to keep the body in a healthy, cheerful, and happy state. It has been erroneously stated that "wine is the milk of old age;" I believe the truth is, that milk is the wine of old age, for both the first and second childhood, the most natural and the most nutritious. Erasmus Darwin used to say, "Milk is white blood." The oldest individuals I have known have lived principally upon milk diet. Second childhood may be treated much in the way as directed by the late Dr. James Hamilton, Professor of Midwifery in the University of Edinburgh: "Plenty of milk, plenty of flannel, and plenty of sleep or rest."

REMARKS ON MEDICAL PROGRESS, by JOHN STEVENS.—"From the harmony which exists throughout the human system, we are led to the conclusion that its whole action depends on the operation of some one principle,—say the principle of heat,—and however much the idea may be derided, it is just the substance of what they tell us, 'that life is a forced state, depending on the operation of stimuli.'

"The fundamental principle that all disease originates from the same cause, either directly or indirectly, viz., a loss of animal heat, and which gives rise to the various ills humanity is subject to. It follows, therefore, that it can have but one direct or indirect mode of cure; what that is we shall presently inquire.

"First, we must ascertain what has caused the loss of the equilibrium,—in other words, how did the disease commence; was it the result of some immediate cause, or has it been gradually advancing, almost imperceptibly, with time, until we can no longer enjoy life? If from some immediate cause, it is then simply an acute disease, and may be removed equally as quickly; if not heeded, or improperly treated, it may go until it settle itself somewhere, either in inflammation of the eyes, rheumatic pains, or affections of the nervous system, or it may fall upon some vital part, and lead either to immediate death, or to a gradual decay and waste of the whole body. Loss of heat, that is, cold, or obstructed perspiration, is the primary cause in either case. The remedial process should be to equalize the circulation, relax the contracted tissues, and open the pores in the former case; and bear the same principle in mind in all others. We unhesitatingly affirm that disease is not so difficult to comprehend as most people imagine; strange forms of it, we admit, do sometimes arise, and which may not be treated successfully, but the ordinary every-day disease, that day after day is to be found almost everywhere, is as entirely within our control as are the cravings of hunger and thirst.

"'The only way to keep the body in a healthy state is to make use of such articles of food as have been proved by *observation and experience* to be adapted to accomplish the end.' After this, shall we be told that the types of disease are continually changing, and that the 'medical treatment must differ at different periods' to meet these changes? Why not apply the same reasoning to food and hunger? Food taken into the stomach nourishes every part; an injury of any one part, an obstruction of any one function, injures the whole frame. A man takes a dose of arsenic, and dies; another, corrosive sublimate, and dies. What does it prove? simply that those individuals violated a single physical law, and death was the result. Many medical men have written upon the importance of a due observance of the physical laws, and yet there is hardly a single disease in the whole catalogue of human ills in which they do not recommend a violation of these laws in order to effect a cure. How long will this absurd theory be tolerated? It is said that 'Providence has a certain way of dealing with the errors of mankind, which is to leave them to the consequences of their own mistakes.'

"The vital principle or power of life, whatever may be its constitutional essence, is undoubtedly an unit. That this vital principle is affected in some way in disease we take for granted; viz., the proximate cause of all disease consists in a loss of vital power or heat, and a deficiency in the performance of functional action. We admit of no exception; whether a diseased organ has increased or suspended its action, its proper function is not performed.

"Let us suppose a case of simple or acute fever: the digestive power is lost, of course nutrition does not go on—the secretions are suppressed—the absorption of worn-out matter or particles is suspended; but action of the sanguiferous system is much increased, and there is now danger of disorganization. In order to reduce the excitement, which must, if not arrested, end in inflammation of some vital part, and thus terminate in death, we would not use the lancet, nor administer opium nor mercury, neither would we leech, blister, cup, nor starve, but would at once open the pores. Through their million mouths the enemy should be assisted to escape; the pulse would soon lose its velocity, the crisis would be past, and the sufferer saved from a lengthened illness, or rescued from a premature grave. To subdue the vital powers, therefore, is not a rational indication; the physician should ever assist nature.

"Mr. S. Key, the first surgeon of the present times, writes, 'The higher the class of practitioner, and the greater his experience, the more does he lean on nature for his guide, and less and less confidence does he repose on the curative influence of medical agents. The sound practitioner of medicine follows nature as his polar star: if she be distorted from her path, he endeavours to conciliate her by gentle means to a return; he studies her movements, and tries to imitate them.'

"It only requires the exercise of an unprejudiced mind to convince every person of common understanding, that whatever substance possesses the property to reduce the living power in man is wholly unfit to restore that power when reduced by disease.

"In all cases of disease, we hold, the vital heat is diminished, the digestive powers are enfeebled, and morbific matter accumulates in the system. If these evils can be removed, the patient is restored to health,—otherwise not. If, therefore, we can command remedies which are best suited to remove those evils, sustain the patient, and prevent the further progress of decay, then we possess one general mode of treatment, adapted alike to all diseases, and sure to cure all, if in their nature curable.

"Lastly, to sum up, we maintain,—first, that the *principle of life is heat;* in other words, that internal vital heat is the agent on which the operations of nature depend. Secondly, that all disease is in its nature opposed to life, and therefore diminishes the vital power or heat of the body; hence a *diminution of heat is disease:* and, thirdly, *that the absence of heat is death.*"

CLIMATE.—A few lines on this subject may be of service to the few who can change their residence from the cold northern counties for the more genial south. Numbers of delicate persons die simply because their constitutions cannot stand the change from a temperature, in September, of 80 or sometimes 100 degrees in the sun, in the day, to 40 in the night; and in winter, from 50 degrees in the day, to freezing point, 32, in the night, and sometimes down to 15 or 20. Much may be done to preserve health and save life, by strict abstinence from stimulants, attending to clothing, as laid down in this work, and to simple diet. Stimulants, instead of enabling persons better to endure cold and damp, have directly the contrary effect; they lower the power of the body to resist cold, by causing internal congestion, and withdrawing the blood from the surface of the body, where it is necessary to cause a feeling of warmth, and concentrating it where it causes obstruction to the circulation. I have said so much in other places in this work on the necessity of guarding the trunk from the cold and damp of our English climate in winter, that it is unnecessary to repeat it, although I see persons continually bringing upon themselves the most serious diseases simply from this cause. Delicate persons, or any at all liable to bronchial affections, if they cannot go to a warmer climate in winter and spring, may avoid the hazard of going out of warm rooms into the cold, by the use of Maw's respirator, and avoiding going out in stormy weather. Houses built on the plan of our establishment, with outer glazed saloon, give the inmates space for exercise and good air in any weather, without the hot and close temperature of sitting-rooms generally little ventilated.

The difference of the height of the thermometer betwixt one place and another is not always a correct criterion of the climate: the shelter from the north and east winds is of more consequence to the invalid. The thermometer in the midland counties, in February, 1855, descended 15 to 20 degrees lower than at Torquay and Hastings; and at Penzance the difference was a few degrees more in favour of the invalid. When the weather in Lancashire or Yorkshire, and in the eastern counties, and the more northerly, has been too inclement for delicate persons to go out of doors, invalids could go out daily in these southern localities, and even dispense with fire in the middle of the day. Several friends of ours, who have just now (10th October) removed from Yorkshire to Hastings, inform us it is like returning to summer; the thermometer at the same time varying from 35 degrees in the night, to 45 or 50 in the day, in Yorkshire: and at Hastings the weather quite too mild for the clothing they went in. Whatever may be said by interested doctors as to the beneficial effects of cold, bracing air for invalids, experience will always convince such invalids of the truth of the contrary doctrine. Why are the registrar's reports of deaths so soon and heavily increased when cold weather sets in? And it is notorious the doctors have a very slack time in the summer months: but as soon as October comes in, in the northerly or eastern counties, acute diseases soon find them plenty of employment. By Christmas, they often find it difficult to get through their work.

Some parts in the west of Scotland and Ireland, although so far north, have very mild climates, owing to the influence of the Western Ocean, and their being protected from the north and east winds by ranges of mountains. The Gulf Stream, from the West Indies, flows towards the south-west of England; and the effects of the warm temperature of the water is felt on all the west coast. Many a life would be saved, if persons could, for a winter or two, emigrate to these genial southern climates, to have their constitutions strengthened to stand colder climates of the north.

The climate of Egypt is highly spoken of for the mildness of the winter season, and is now within about fourteen days by steamer. One of my patients, who resides mostly at Cairo, informs us that the temperature and climate of November are equal to our July, and very dry. The discomforts of foreign parts are, however, to be taken into account; and from all the information we have been able to gather on this subject, I believe a sufficiently mild climate is to be found in England, and with English comforts. Hastings, and all the coast in that locality, afford good winter shelter for the invalid; and surely where it is a question of life or death, all other considerations should give way, if the means are not wanting; but this is often the difficulty. I have corresponded with an invalid, at Hastings, from November to July. The great advantage of Hastings is not so much in a high degree of temperature during winter and spring as the absence of severe weather; the thermometer never descends to within 10 to 20 degrees so low as in the midland and northern parts of England; and even at the Chiswick observatory, the thermometer, in cold weather, goes 10 to 15 degrees lower than at Hastings. My correspondent frequently breakfasted with the window open, or sat on the sea-beach for hours; when, in these more northern parts, we were glad of a good fire. The climate of Hastings and other warm parts of England will bear favourable comparison with any abroad; and as to comforts for an invalid, those to be had in this country are greatly superior, and besides, being within range of friends. Many an invalid is ordered abroad to find discomfort and an early grave; the changes of temperature are greater in Italy and other parts than in England. Invalids should avoid the eastern coast; and as to the north-eastern, few comparatively escape chest complaints entirely. I repeat that whatever is said as to cold, bracing air being good for consumptive or delicate patients, experience will prove that a mild climate, where the patient can breathe with so much more ease, and the advantage of being able to take exercise in the open air, is very much more in favour of health than a cold atmosphere or close rooms with fires. Our large glazed saloons, heated by steam, give us great advantages for winter treatment; we recommend patients to have a course, and learn how to manage their health; but for an entire winter residence in chest diseases, no artificial protection can equal the warm southern localities of England.

CLIMATES. — THE FOLLOWING SKETCH OF CLIMATES, AND THEIR RESPECTIVE ADAPTATION TO THE PRESERVATION OR RESTORATION OF HEALTH, IS TAKEN FROM THE EXCELLENT WORK OF SIR JAMES CLARKE; TO WHICH WE REFER THE READER FOR FURTHER INFORMATION:—

"English Climates.—The great desideratum in this country is to find a mild climate and sheltered residence for our pulmonary and other delicate invalids during the winter and spring. Our warmest winter residences in England are mostly found on the southern and south-western shores; indeed, it is their vicinity to the sea which in a great degree renders them warmer than the inland parts in their respective vicinities. The mild region of England admits of a natural division into four districts or groups, each having some peculiar features in its climate which characterise it and distinguish it from the others, both as regards its physical and medical qualities. These are—

"1. The south coast, comprehending the tract of coast between Hastings and Portland Island, including the Isle of Wight.

"The superiority of the climate of this district exists chiefly during the months of December, January, and February. In March, the temperature of this coast, and that of the interior, is nearly the same. In April and May, the temperature of the interior rises above that of the coast, and continues higher, though in a less ratio, through the summer months. In October, the mean temperatures are again equal; and in November, that of the coast begins to exceed the interior. The only places on the south coast which we consider deserving of particular notice are Undercliff, in the Isle of Wight, and Hastings and Brighton, on the coast of Sussex.

"*Undercliff* is decidedly the most sheltered and warmest of these places, and it has, moreover, this convenience of most of our other winter residences, that it also affords a good summer climate.

"*Hastings* follows Undercliff in point of shelter and warmth during the winter and spring months. Its situation at the base of a range of steep hills, which protect it in a considerable degree from the north and north-east winds, renders it a milder and more sheltered residence during this season than the other parts of the coast of Sussex.

"*Brighton* differs materially in the character of its climate from both these places. It is more exposed to northerly winds, but the atmosphere is drier and more bracing. While inferior to Undercliff and Hastings as a residence in diseases of the respiratory organs, accompanied with much irritation, it offers advantages over both to invalids of a relaxed and nervous habit, who are not very excitable. Autumn is the season during which the climate of this place possesses the greatest advantages; and even to the end of December, it is one of the mildest climates in our island, and most favourable for a large class of invalids; more especially for cases in which a relaxed state of the system is a leading feature.

"Invalids who select the coast of Sussex as their winter residence might find it advantageous to pass the autumn at Brighton, and the winter at Hastings.

"2. South-west Coast.—The winter climate of the south coast of Devon has long been noted for its mildness. The temperature of its more sheltered spots during the months of November, December, and January (when the difference is greatest), is, in the average, about five degrees higher than that of London during the same period; whereas, on the south coast, the difference scarcely exceeds two degrees. This superiority of temperature over London at both places occurs chiefly during the night; though the days are proportionally warmer, and the temperature more steady on the south-west than on the south coast.

"Various places on the coast of Devonshire are held in repute on account of the beneficial effects of their climate, more especially in pulmonary diseases. The principal of these are *Torquay*, *Dawlish*, *Sidmouth*, and *Exmouth*. Salcombe, the Montpelier of Huxham, is unquestionably one of the warmest spots in our island during the winter. At Torquay, the invalid has the advantage of a considerable tract of sheltered country, some part or other of which will afford a protracted ride or walk, in whatever direction the wind blows. Torquay is superior in this respect to every place in our island. Its position also on the southern declivity of a range of pretty steep hills, composed chiefly of calcareous rocks, renders it comparatively dry. Hence, while Torquay possesses all the advantages of the climate of this coast, its chief disadvantage (humidity) is felt in a less degree than elsewhere.

"3. Land's End.—The only place in this district deserving particular notice is *Penzance*, which has long been frequented by invalids on account of the mildness of its winters. Penzance has a very peculiar climate, which depends on its almost peninsular situation at the south-western extremity of the island. A remarkable equality in the distribution of the temperature throughout the year, and throughout the day and night, is a striking character of this place. In this respect, indeed, the climate of Penzance is superior to that of the south of Europe; and the only climate which we have examined that excels it is that of Madeira. This peculiarity of the climate of Penzance will be shown at once by comparing it with that of London, where the difference between the warmest and coldest months is twenty-six degrees, while at Penzance it is only eighteen degrees.

"In other respects the climate of the Land's End does not stand so high in a medical point of view. It is very humid; the quantity of rain which falls annually at Penzance being nearly double that which falls in London, and the number of rainy days much greater. This district is also proverbial for the frequency and violence of its gales; and Penzance, owing to its total want of shelter from the northerly and easterly winds, is colder during the spring than either Torquay or Undercliff. Hence it is, that, although Penzance possesses a decided superiority over all the other situations in our island, in the mildness and equability of its winter climate, its humidity, exposed situation, and liability to winds, render it inferior to several other places as a residence for invalids.

"*Flushing*, a small village in the vicinity of Falmouth, is the only other place in this district deserving notice. The position of Flushing differs from that of Penzance only in being somewhat protected from the north and east winds by a low range of hills which rises immediately behind it.

"Before quitting the south-west coast and Land's End, it is proper to remark, that, though varying somewhat in degree at different places, the predominant character of the climate is that of softness and humidity; on the system generally, it has a soothing but relaxing influence.

"From this character of the climate of the whole south-western coast of our island, it will be at once understood that it is most suitable for the irritable and inflammatory habit, and least so for the relaxed nervous constitution; that in the dry, irritated conditions of the mucous membranes, with a parched state of the skin, it will prove beneficial; while in the morbid states of the same membranes, accompanied with copious secretion, or when there exists a disposition to profuse discharges of any kind, it will prove injurious. Even many of those cases which are benefited by a temporary sojourn would be injured by a permanent residence in this district. The climate, indeed, possesses qualities of so marked a kind, that when it ceases to do good, it generally begins to do harm: hence it will seldom be prudent, much less advantageous, for the invalid who has passed the winter and spring on this coast, to prolong his residence through the summer: he will in general do well to betake himself to a drier and more bracing air, especially if he intends to return the succeeding winter.

"4. West of England.—*Clifton*, the only place in the western district which we deem it necessary to notice, has several local advantages, and possesses the best climate in the part of the country where it is situated. Compared with that of the south-west coast, it is more exciting, more bracing, and drier, but not so mild. It is therefore less suited for pulmonary and other diseases, accompanied with much irritation, and with a tendency to inflammation. On the other hand, it is better adapted to invalids of a relaxed, languid habit; and it is also very beneficial in many cases of dyspepsia, in affections of the mucous membranes with much secretion, and in the scrofulous affections of young persons.

"Before commencing our review of foreign climates, the islands of *Guernsey* and *Jersey* require some notice, as they are occasionally resorted to by invalids from this country. The climate of these islands resembles in its general characters that of the coast of Devonshire; it is somewhat warmer, but not more steady; and is more exposed to high winds."

ADULTERATION OF FOOD.—An interesting little book on this subject, published by Bogue, Fleet Street, London, entitled "Tricks of Trade," is well worth perusal. Price 2s. 6d. The following extracts will show the importance of the subject:—

"Potted beef is, in nine cases out of ten, coloured by means of bole Armenian.

"Potted herrings generally contain bole Armenian to a very great extent, and are also very frequently adulterated with flour and starch.

"Anchovy paste appears to be even more adulterated than the potted meats (for an account of which the reader is referred to the article *Anchovies*).

"The active chemical substance in bole Armenian is oxide of iron. It is rarely used in medicine, but when taken, it has a tonic and rather stimulating effect. But we must remember that bole Armenian has, in some instances, been found to be adulterated with red lead; and the presence of this active and fatal poison has been more than once detected in potted meat and fish.

"BOTTLED FRUITS.—The property of copper solutions in imparting a permanent and vivid green colour to the liquid used in preserving vegetable substances, has been largely and poisonously taken advantage of by the manufacturers of bottled fruits. The quantity of copper contained in such articles may not be sufficient to produce fatal effects on all constitutions, but serious symptoms of gastric irritation are sometimes produced on children which may assume an alarming character. Some preserved gooseberries, sent by a friend to Professor Taylor for examination, were found to be largely impregnated with copper; indeed, the poison was present in sufficient doses 'to cause colic and vomiting,' and the other painful symptoms of chronic poisoning in its most aggravated form. In his examination before the Adulteration Committee, Dr. Hassall mentioned another instance of this poisonous adulteration. A gentleman wrote to the *Lancet*, giving his name and address, and stating that he had partaken at dinner of some rhubarb tart, which he had noticed presented a very peculiar appearance, for it was much more green than it should be. He partook of it with suspicion, but still did eat some of it; and on accidentally casting his eyes down and looking at his fork, which was of steel, he found the prongs covered with copper.

"The gratitude of the public towards Dr. Hassall ought to be both great and lasting, for the philanthropic patience with which he has examined into the adulterations of all articles of food. That gentleman, after analysing forty different samples of bottled fruits, came to the terrible conclusion that (with only one single exception) all of them were contaminated with copper.

"FLOUR is not so much adulterated as might have been expected, from the fearful extent to which adulteration is carried in the manufacture of bread. The falsifications practised by the millers principally consist of mixing bad flour with good. Pereira, however, states (1850) that wheat flour is subject to adulteration with various vegetable and mineral substances. Among vegetable substances, he names the following:—Potato starch, the meal of other cereal grains (viz., of maize, rice, barley, and rye), of buck-wheat, and of certain leguminous seeds (viz., of beans, peas, and vetch).

"The numerous other substances which have been used to adulterate wheat flour are chiefly chalk and sulphate of lime—plaster of Paris. White clay and bone-ashes are also said to have been used. Sulphate of copper and alum are mixtures added to buck-wheat flour to improve its quality, and render it more fitted for making bread.

"There is no doubt that flour, before it is ultimately made into bread, suffers a double adulteration. First of all, the miller adds either a cheaper material, or mixes with it some chemical substance, for the purpose of improving the appearance of his goods. Thus the miller frequently adulterates his flour with alum, and the baker again adulterates it, by putting a little more to it.

"Bread.—The adulterations consist principally of the introduction of alum; sometimes it is used in large quantities. In bread that has been carelessly mixed, a crystal of alum has been discovered the size of a large pea, and in other cases large crystals of alum have been found. To the poor, whose daily food consists almost entirely of bread, this shameful adulteration is productive of much hardship. The working man, instead of finding in his daily allowance the nourishment which he pays for, gets, on the contrary, an enfeebled power of digestion, and, consequently, an inferior power of performing work. The effect of the alum is to augment the whiteness and firmness of bread made from interior kinds of flour. Home-made bread has a yellowish tinge, which alum would remove. The use of alum is forbidden by law, but it is frequently employed, under the name of '*stuff*.' Whatever doubts may be entertained as to the ill effects of alum on the healthy stomach, none can exist as to its injurious effect in cases of dyspepsia.

"Alum acts chemically on the animal tissues and fluids. If a solution of it in water be added in certain proportions to albumen, it causes a white precipitate. It also forms insoluble combinations with milk and gelatine. These phenomena explain the action of alum on the fibrinous, albuminous, and gelatinous constituents of the living tissues. The immediate topical effect of a solution of alum is that of an astringent; it causes the smaller vessels in the body to contract. By diminishing the diameter of the blood-vessels, it checks the supply of blood, and so produces paleness of the parts. It is by these local effects that 'alum, when taken internally, causes dryness of the mouth and throat, somewhat increases thirst, checks the secretions of the alimentary canal, and thereby diminishes the frequency, and increases the consistency of the stools, as observed by Wibmer in his experiments made on himself with alum, in doses of *three grains*, dissolved in five drachms of water, and taken several times during the day.'

"Cakes, Pastry, &c.—Cakes, of which the plum-cake may be taken as the type, may be regarded as a rich variety of bread, though, in common parlance, they are considered distinct from this. They are composed of wheaten flour, butter or lard, eggs, sugar, raisins, currants, almonds, &c. They form a most indigestible kind of food, totally unfit for children, invalids, and dyspeptics. Their indigestible quality is principally derived from the butter or lard which they contain. The adulterations in cakes, &c., consist almost entirely of the adulterations in the flour, sugar, butter, or lard with which they are made.

"Sugar.—The impurities are either organic or inorganic. The organic impurities consist of fragments of the cane, grape-sugar, albumen, an insect peculiar to cane-sugar, fungi, woody fibre, and starch-granules. The inorganic impurities have been found to consist of lime, lead, iron, sand, and grit. All of these impurities arise from the imperfect preparation of the juice before allowing it to crystallize. Grape-sugar is a low sugar, deficient in sweetening powers; therefore it is evident that by admixture with grape-sugar, that of the cane must be greatly depreciated in value.

"Dr. Pereira states that brown sugar is extensively adulterated with sugar prepared from the potato-starch as well as with that made from sago-flour (these substances are analogous with grape-sugar). Potato-sugar is manufactured at Stratford, in Essex. It is clammy, and wants that sparkling crystalline appearance possessed by West India sugar, is much less sweet than the latter, and possesses a bitter, somewhat unpleasant taste.

"We have above stated that one of the impurities of sugar was an insect peculiar to the juice of the cane. The discovery of this animalcule is due to Dr. Hassall, who was the first to employ the microscope in his researches into the adulteration of sugar. We cannot do better than borrow his description of it. This insect is a beetle-like animalcule, of the genus *Acarus*.

"'The sugar acarus approaches somewhat, in organization and habits, to the louse and the itch-insect itself, which are also included in the genus *Acarus*. The sugar mite is in size so considerable that it is plainly visible to the unaided sight. When present in sugar it may be detected by the following proceeding:—Two or three teaspoonfuls of sugar should be dissolved in a large wine-glass of tepid water, and the solution allowed to remain at rest for an hour or so; at the end of that time the animalcules will be found, some on the surface of the liquid, some adhering to the sides of the glass, and others at the bottom, mixed up with the dark and copious sediment.'

"For the consolation of our readers, we are happy to announce that this insect is never found in purified, *i. e.* lump sugar. It owes its existence and nutriment to the albumen which, as we said before, is always present in inferior sugars."

SWEETMEATS AND LOZENGES, and Cough mixtures, are all adulterated with ingredients dangerous to life. The raspberry and strawberry flavoured lozenges have not a particle of the juice of the fruit in the flavour—being given by chemical compounds entirely; and as to the flavoured syrups, they are vile mixtures simply made for sale. (See book.)

"MILK.—The Honourable F. Byng, in a pamphlet on the Sanitary Condition of the Parish of St. James, Westminster, gives the following description of the state in which he found the cow-sheds of the district. 'Two of these sheds (of which there are fourteen in the parish) are situate at the angle of Hopkins and New-street, Golden-square, and range one above the other, within a yard of the back of the houses in New-street. Forty cows are kept in them, two in each seven feet of space. There is no ventilation save by the unceiled tile roof, through which the ammoniacal vapours escape into the houses, to the destruction of the health of the inmates. Besides the animals, there is at one end of the sheds a large tank for grains, a store place for turnips and hay, and between them a receptacle into which the liquid manure drains, and the solid is heaped. At the other end is a capacious vault with a brick partition, one division of which contains mangel-wurzel, potatoes, and turnips, and the other a dirty, yellow, sour-smelling liquid called brewers' wash, a portion of which is pumped up and mixed with the food of the cows. The neighbours are subject also to the annoyance of manure carts, which frequently stand some time in front of their houses; and when the mouth of the vault is opened to admit the ingress of the brewers' wash, a burning sour smell is described by them as pervading the dwellings. After the buildings have remained closed for the night, the atmosphere within becomes heated, foul, and unwholesome. In summer-time, the smell is most offensive. Decomposition of the vegetable matters in the vault is also stated to be frequent, and the stench thence arising insufferable. At the opposite side of the houses, in the same street, is another shed, with even less possibility of ventilation than in those just described. Thirty-two cows stand side by side, two in each space of seven feet, as above. In Marshall-street there is a third establishment, containing twenty-eight cows. In a wall on one side, overlooking a yard in which is a slaughter-house, are several grated openings, but they are carefully covered with pieces of sacking, as if to prevent all possible admission of air. In the shed are receptacles for vegetables and grains as before. The manure tank holds twelve tons, and that for brewers' wash 600 gallons. It is to be remarked, that even the manure, from the nature of the food supplied to the cows, acquires a peculiarly unhealthy and offensive odour, altogether dissimilar to that from farm-fed animals. In this atmosphere, reeking with all these pestiferous effluvia, the poor creatures are kept close shut up night and day, till, their milk failing, they are consigned to the butcher. The effects of this system of feeding, impure air, and deprivation of all exercise, are thus described from actual inspection of four cows, which the keeper said were suffering from the old disease.

"'There was inflammation of the mucous membrane of the mouth, fauces, and gullet, a catarrhal discharge from the nostrils, and such prostration of the muscular system, as to render the animals unable to remain in a standing position for any length of time. The mucous membrane of the mouth is sometimes so blistered as to prevent the animals from taking food. Swellings of the udder appeared, attended by a change in the quality and deficiency in the secretion of milk. The feet also became much diseased and swollen; general emaciation followed, in which the animals continued for an indefinite period, or till death. Four months prior to this visit, the owner of one of these sheds lost thirteen cows by disease.

"'A Dutch cow was pointed out, which was evidently in a state of marasmus, her head hanging nearly to the ground; the horns cold; the ribs staring through the hide on each side of her emaciated body, on which the hair bristled and stood erect. Notwithstanding this prostration of the vital powers, the cow was regularly milked with the others, furnishing a daily supply of ten quarts.' Dr. Normandy, in his evidence before the Parliamentary Committee, tells us that he witnessed, in Clerkenwell, a spectacle which prevented him from tasting milk for six months. He saw about thirty or forty cows in the most disgusting condition one can possibly imagine, full of ulcers; their teats in a most horribly diseased ulcerated state, and their legs full of tumours and abscesses; in fact, it was terrible to look at. A fellow was milking these poor cows in the middle of all this purulent abomination. The litter on which the beasts stood was a mass of fuming and fermenting matter, resembling a dung-heap.

"The animals kept by a great many London cow-keepers are in the same condition as that described by Dr. Normandy. There can be no doubt that diseased matter is thus introduced into the milk.

"WATER in its natural state is never perfectly pure, rain-water being contaminated by the impurities which it takes up in falling through the air, spring-water by those with which it meets in rising from the earth. The natural colour of water in large masses is blue, but it is only in certain parts of the Pacific and Mediterranean that the colour is observable. In our muddy English rivers we find it grey or brown; sometimes, when the amount of vegetable matter which it contains is very great, it appears almost black; and off the British coast, the yellow matter which it holds in solution combines with the native blue, and gives it a green tint. The very clearest spring-waters, even after being filtered, are never pure. Water is the only substance which, to be fit for consumption, must not be pure; that is to say, it must contain some atmospheric air. Pure water is, of course, a chemical compound, and contains no air whatever. But such water is unfit for consumption, because it contains no air; it is indigestible, heavy, and in fact it would appear that distilled water, which is pure water, and which is supplied to the navy occasionally, from stills erected for the purpose on board, is actually so vapid, that after a few days' use the sailors will hardly drink it. Neither is it prudent that such distilled water should be used, for, by reason of its containing no air, it has a great tendency to take air from the medium where it is kept; so that if distilled or boiled water, which contains no air, is kept in a ship's hold, or in an impure dwelling, it will absorb precisely the quantity of air which it can absorb, namely, five cubic inches per gallon, and become perfectly putrid and fœtid, or contaminated by organic matter. Water should always be kept, when it has been distilled or boiled, in perfectly ventilated rooms or pure receptacles, or else it will become as foul as or more foul than before. Dr. Stenhouse, three or four years ago, found that charcoal had the power of purifying air. Acting upon his data, Dr. Normandy has since found that charcoal has the same power of purifying *aërated* water which contains foul organic matter, provided only the water is aërated; that is to say, contains air.

"COCOA AND CHOCOLATE.—It is computed that cocoa is used as an article of diet by at least fifty millions of the human race. Its chief consumption takes place in Spain, Italy, France, Central America and Mexico. It is an extremely nutritious substance, closely resembling milk in its composition. Thus milk when dried by evaporation, and the cocoa-bean when dried, consist respectively of—

	Milk.	Cocoa-bean.
Casein or gluten	35	21
Fat	22	51
Starch or sugar, &c.......	37	22
Ash or mineral matter....	4	4
Theobromine............	2	2
	100	100

"Mr. Mitchell, writing of the adulterations of cocoa, says, 'Chocolate is adulterated with flour, potato-starch, and sugar, together with cocoa-nut oil, lard, or even tallow.' The mineral substances employed in the making up of chocolate are, according to Mr. Mitchell, some of the ochres, both red and yellow. These earths are used for the purpose of giving weight, and also to give the colour of cocoa to the vast quantities of starch with which the chocolate and cocoa is adulterated. Dr. Normandy, who has devoted much time and patient research to the adulterations of chocolate, expresses himself very strongly on the subject. Many of the preparations of the cocoa-bean, sold under the names of chocolate, of cocoa-flake, and of chocolate powder, consist of a most disgusting mixture of bad or musty beans, with their shells, coarse sugar of the very lowest quality, ground with potato-starch, old sea biscuits, coarse branny flour, animal fat (generally tallow, or even greaves). Cocoa powder is sometimes made of potato-starch, moistened with a decoction of husks, and sweetened with treacle; chocolate is also made of the same materials, with the addition of tallow and ochre. Chocolate, in which either brick dust or red ochre had been introduced, to the extent of twelve per cent., is commonly sold as a pure and genuine article. An instance is given of chocolate having been purchased which contained twenty-two per cent. of oxide of iron, the rest being starch, cocoa-beans with their shells, and tallow. It is a common practice to extract from the cocoa-bean the rich fat or butter which it contains, for the purpose of selling it to druggists, to be used as a medical preparation, and then, in order to replace it in the chocolate, animal grease and tallow is employed. Genuine chocolate is of a dark *brown* colour; that which is adulterated is of a red hue. The only way to insure purity is to buy cocoa-beans; crush and stew them, and skim off the oil.

"TEAS are very much adulterated, not only in England, but also in China. From Mr. Fortune, who himself witnessed the process employed by the Chinese for giving an artificial colouring to green tea, we gather the following particulars of the process:—'The superintendent takes a portion of Prussian blue, throws it into a porcelain bowl, not unlike a mortar, and crushes it into a very fine powder; at the same time a quantity of gypsum is burned in the charcoal fire over which the tea is roasting. This gypsum having been taken out of the fire after a short time, readily crumbles down, and is reduced to powder in the mortar. The two substances thus prepared are then mixed together, in the proportion of four of gypsum to three of Prussian blue, and form a light blue powder, which is then ready for use. This colouring matter is applied to the tea during the last process of roasting. About five minutes before the tea is removed from the pans, the superintendent takes a small porcelain spoon, and with it he scatters a portion of the colouring matter over the leaves in each pan. The workmen then turn the leaves rapidly round with both hands, in order that the colour may be equally diffused. To fourteen pounds of tea about one ounce of colouring matter is applied. During this part of the operation the hands of the workmen are quite blue. The Chinese acknowledge that tea is much better without such ingredients, and that they never drink dyed tea themselves; but remark that foreigners seem to prefer having a mixture of Prussian blue and gypsum with their tea, to make it look uniform and pretty; and as these ingredients are cheap enough, they have no objection to supply them, especially as such teas always fetch a higher price. The adulterated tea manufactured in China under the appropriate name of lie tea, and of which half a million pounds weight is imported annually into this country, consists of the sweepings of the tea warehouses, mixed with rice-water, and rolled into grains. It is made either black or green, and with the acknowledged purpose of adulterating other teas. Genuine teas yield only from five to six per cent. of ash, while lie tea yields from thirty-seven to forty-five *per cent.*, thus indicating the large amount of dust and other impurities with which it is mixed."

MUSTARD is so notoriously adulterated that it is said a pure sample is not to be bought; the best way to have it genuine is to purchase mustard seed, and have a small coffee-mill to grind it; and although it will not have such a bright appearance, it will be pure. For mustard plaisters, or mustard foot-baths, mustard husks can be bought of mustard-makers at 10s. per cwt. (See book.)

"GROUND PEPPER is so much adulterated, that the only method of obtaining it in a pure state is, like coffee, to buy the article in the grain, and reduce it to powder by a hand mill.

"The principal substances used by the dealers to defraud the purchaser are linseed, wheat flour, mustard seed, pea flour, and ground rice.

"Some years since it was not uncommon to meet with artificial peppercorns. Accum, in his celebrated 'Death in the Pot,' says, that he has examined large packages of both black and white pepper, and has found them to contain about sixteen per cent. of this artificial compound. This spurious pepper is made of oil cake, common clay, and a portion of Cayenne pepper, formed into a mass, and granulated by being first pressed through a sieve, and then rolled in a cask. The reader will perhaps remember that a somewhat similar fraud was practised with chicory, by compressing in a machine until it resembled the coffee berry.

"PICKLES.—On turning to Accum's invaluable work on the adulterations of food, we read—'Vegetable substances preserved in the state called pickles, by means of the antiseptic power of vinegar, whose sale frequently depends upon a fine lively green colour, and the consumption of which, by seafaring people in particular, is prodigious, are sometimes intentionally coloured by means of copper. Gherkins, French beans, samphires, the green pods of capsicum, and many other pickled vegetable substances, oftener than is perhaps expected, are met with impregnated with this metal. Numerous fatal consequences are known to have ensued from the use of these stimulants to the palate, to which the fresh and pleasing hue has been imparted, according to the deadly *formulæ* laid down in some modern cookery books, such as boiling the pickles with half-pence, or suffering them to stand for a considerable period in brazen vessels.'

"VINEGAR.—The most common adulteration of vinegar is to mix the inferior malt vinegars with pyroligneous acid. This imitation has not so fragrant an odour as the genuine article.

"The dark colour of the vinegar sold in England is owing to the presence of burnt sugar, which is added solely for colouring purposes. Why this absurdity should be persisted in it is impossible to say, since the most valuable wine vinegars are principally distinguished for their light, bright, and transparent clearness.

"The permission which has been accorded by the law to manufacturers to add a small quantity of sulphuric acid to their vinegar, has, unfortunately, been largely taken advantage of for the purpose of giving a false strength to otherwise worthless produce. The weak vinegars, which they sell at a low price, are, without greatly increasing their cost, made to equal in acidity the better class of manufactures, by employing sulphuric acid.

"TOBACCO.—The French tobacco contains from four to seven per cent. of nicotine. It is not many years since an immense sensation was created in Europe by a murder committed by means of nicotine. The Count Bocarme, a Belgian nobleman, to possess himself of certain estates, poisoned his brother-in-law with an infusion of tobacco. Whenever the use or application of this plant has proved fatal, it is always owing to the action of this poison. When applied as a poultice to wounded or diseased surfaces it may occasion the most alarming symptoms. A youth afflicted with ringworm was killed by having tobacco leaves applied to the sore.

"As a poison, nicotine is almost as powerful as prussic acid. A single drop given to a dog was sufficient to destroy life; and Orfila, on examining the stomach of the animal on which the experiment had been made, found that the mucous membrane of the stomach was greatly inflamed, and of a vivid red throughout. Dr. Pereira considers that it is not safe to administer medicinally more than twenty grains of tobacco; and as the strongest leaves do not contain more than eight per cent. of nicotine, the amount of poison present is very small. Dr. Copeland lost his life from employing a dose of thirty grains of tobacco. Nicotianin is the concrete volatile oil of tobacco, obtained by distilling the leaves. It is also very poisonous. Hermbstädt swallowed a *grain* of it, which produced nausea, giddiness, and inclination to vomit. The smoke drawn into the mouth during the act of consuming tobacco, either in a pipe or as a cigar, has been analysed by Melsens. In one hundred grains of Virginian tobacco he detected the alarming quantity of three-quarters of a grain of nicotine.

"DRUGS.—In health we have to contend against the adulterations in our daily food; and when, at last, they have rendered us ill, then we have to fight against the adulterations of the medicines that are given for our recovery. The adulterations of drugs may be divided into three classes: the adulterations which are practised upon the drugs before they reach this country; the adulterations practised by the drug-grinder, or person whose business it is to prepare them for the market, by reducing them to a powder; and the adulterations committed in the shop of the retailing chemist. All the gentlemen examined by the Select Committee on Adulterations of Food, &c., agreed in saying that by far the greater proportion of that adulteration was due to the drug-grinder."

FALLACIES OF THE DRUG MEDICATION PRACTICE, according to the showing of its own professors :—

"To the aid of allopathy the untiring energy and talent of ages have been brought, and great are the advancements in Chemistry, Anatomy, Physiology, and Pathology, in inventions for investigation of disease, in the history of disease itself, in social science; and incalculable the philanthropy and benevolence displayed by the members of its ranks in this and other times. Yet, says Dr. Williams, the author of the able work on 'The Principles of Medicine,' in his introductory chapter—'Compare the state of the practice of medicine with that of anatomy, physiology, chemistry, the great fundamental or preparatory studies. How minute, how precise, how connected and definite are these! Yet how loose, indefinite, uncertain, unconnected is the practice of our art! To the public it appears altogether vague—without any acknowledged principles. Is there any wonder then that quackery should triumph? that the public show their want of faith in legitimate medicine by their ready belief in any novelty that is not legitimate? The public may show their ignorance by such credulity, but they show also the want of something plain and trustworthy in regular medicine.'

"Again: Lord Ebury stated in his place in the House of Lords, in the discussion on the Medical Act, 'that they were about to entrust medical practice to a set of men who declared they had no faith in their system. Dr. Bailey, on his death-bed, doubted whether the medicine which he had prescribed had not done more harm than good. Dr. Chambers, in a funeral oration upon Dr. Williams, said, that the deceased had no confidence in medicine; and Sir J. Forbes stated that the present practice of medicine was so entirely unsatisfactory, that he hoped some new school might be set on foot.'

"Dr. James Johnson, in the *Medical Chirurgical Review*, says that it is his conscientious opinion, founded on long observation and reflection, that if there was not a physician or surgeon in the world, there would be less mortality than now prevails. The celebrated Magendie says:—'Let us no longer wonder at the lamentable want of success which marks our practice, when there is *scarcely a sound physiological principle amongst us!*' Frank declares 'that thousands are annually slaughtered in the quiet sick room.' Dr. Paris acknowledges that 'the file of every apothecary would furnish a volume of instances, where the ingredients of the prescriptions are fighting together in the dark.'

"Dr. Bushnan, the editor of the *Medical Times*, calmly tells the medical man to fold his arms and look on, while nature does the work; 'for,' says he, 'the modern triumph of our art (triumph, forsooth!) is more in the happy forbearance exemplified in our negative treatment than in the positive success of any heroic remedy; i.e., look on, gentlemen—do nothing; and take my word for it, you will be infinitely more successful as practitioners than by giving any amount of physic, *secundem artem*.'

"Dr. Pereira, a most distinguished medical writer, agrees in opinion with Sir Gilbert Blaine, 'That in many cases the patients get well *in spite of the means employed;* and sometimes, when the practitioner fancies that he has made a great cure, we may fairly assume the patient to have had a *happy escape*.'

"Still it may be urged, this allopathic system does cure. We see, every day, persons getting well under it. If it does good to them, why should it not suffice for us,—for all? Let us hear what Sir John Forbes, one of her Majesty's physicians, says, on this head, in his *Art and Nature in the Treatment of Disease*:—

"1st.—'That in a large proportion of cases the *disease is cured by nature, and not by them.*

"2nd.—'That in a lesser but still not a small proportion, the *disease is cured by nature in spite of them.*

"3rd.—'That, consequently, in a considerable portion of diseases, it would fare as well or better with patients in the actual condition of the medical art, as now generally practised, if all remedies, at least all *active remedies*, especially DRUGS, were abandoned.

"'We (Sir J. Forbes) repeat our readiness to admit these inferences as just, and to abide by the consequences of their adoption. We believe they are true. We grieve sincerely to believe them to be so; but, so believing, their rejection is no longer in our power; we must receive them as facts, until they are proved not to be so. What, indeed, is the history of medicine but a history of perpetual changes in the opinion and practice of its professors, respecting the very same subjects—the nature and treatment of diseases? Who, amongst us, of any considerable experience, and who has *thought* somewhat as well as *prescribed*, but is ready to admit that in a large proportion of the cases he treats, whether his practice in individual instances be directed by precept and example, by theory, by observation, by experiment, by habit, by accident, or by whatsoever principle of action, he has no *positive proof*, or rather no *proof whatever*, often indeed very little probability, that the remedies administered by him exert any beneficial influence over the disease? We doubt if we should greatly, if at all, exceed the bounds of truth, if we said that the progress of therapeutics (i.e., what to do in order to cure the patient) during all the centuries that have elapsed since the days of Hippocrates, has been less than that which has been achieved in the elementary sciences of medicine during the last fifty years; in other words, there has been more done in those things which are mere aids in medical knowledge, during the last fifty years, than in therapeutics, or knowing what will cure a disease, in two thousand years. This department of medicine,' adds Dr. Forbes, 'must indeed be regarded as yet in its infancy. It would doubtless be going far beyond the truth to assert that there is no certainty in medical therapeutics; and that in *the whole practice of medicine* (*in as far as this consists in the administration of drugs*) *is a system of traditionary routine, conventionalism, hap-hazard, and guess-work; but it is not going beyond the truth to assert that* much of it is so.'

"As to the large dose, says a writer in the *Medical Times*:—

"'We could present rather a serious tragedy if we were to collect all the cases of poisoning by huge masses of powerful medicine by the disciples of this physician, and of sanguinary homicide by the invitations of that bold surgeon, *though they may both enjoy high repute.* Could all the consequences from the use of mercury alone be brought together and comprehended in one view, it would be impossible for the human eye to look upon a scene of greater devastation and horror.

"'He, who, for an ordinary cause, resigns his patient to mercury, *is a vile enemy of the sick;* and if he is tolerably popular, will, in one successful season, have paved the way for the business of life; for he has enough to do *ever afterward to stop the mercurial breach of the constitution of his dilapidated patients.*'

"Dr. Bell, of Edinburgh, remarks, 'that the favourite mode of administering metallic and other remedies in a concentrated form is contrary to reason and the teaching of nature; inasmuch as nature, when preparing a remedy, as in the case of mineral and medicinal springs, invariably presents it in a state of remarkable dilution or attenuation, such being apparently the most favourable form for its ready absorption. So also, in the case of a medicinal herb, we find it diffused throughout the plant in a state of minute division, instead of occurring in the form of an extract, such as is sedulously prepared and administered, in preference to the state in which it exists in the capillaries of the plant.' As to large doses, he observes, 'Take, for example, iron. We know that the entire blood of an adult does not contain more than thirty grains of iron, and when this is deficient in disease, what use can there be in giving a large quantity where so little is required? I have repeatedly seen so small a dose as the eighth of a grain of the extract of Belladonna taken into the stomach of a young person cause full dilatation of the pupil. Now, if we consider how extremely minute must be the portion of even this very small dose when circulating through the blood-vessels which comes into contact with the nerves of the iris, we may form some conception of the susceptibility of our frame.'"

EMETICS.—In Hydropathic practice we never attempt to produce sickness; on the contrary, we endeavour, by our gentle applications, to get the organ to act with vigour to pass its contents in the natural channel, and we withdraw morbid or inflammatory matter principally through the skin: thus the stomach and other alimentary organs are not only left uninjured, but actually strengthened. The following allopathic remedy, for various diseases, leaves the cause of disease untouched, and further lowers the powers of nutrition. Dr. Hooper states the treatment for ague as follows:—

"An emetic will sometimes answer the purpose, by determining the blood powerfully to the surface of the body; or a full dose of opium, assisted by the pediluvium, &c. Ether, also, and various stimulant remedies, will often succeed; but these may perhaps aggravate, should they not prevent, the fit. Bleeding in the cold stage has been greatly advocated, especially by the late Dr. Macintosh, of Edinburgh, as a means both of cutting short the paroxysm, and preventing its recurrence; but we apprehend that no one, who has had large experience of the disease in marshy districts, will be favourably inclined towards this practice. Strong impressions on the mind, &c., have likewise been occasionally employed with effect. When any of the above means have been found successful in preventing one paroxysm, they should again be resorted to when the patient is threatened with another, and in this way the disease is often entirely subdued. Should the paroxysm have already come on, and the cold stage be very severe, cordial diaphoretics, in repeated moderate doses, may assist in bringing warmth to the surface; when, on the contrary, great heat prevails, the antiphlogistic plan is to be pursued; and it may be sometimes advisable, when an organ of importance is much pressed upon, to take some blood locally, or even from the general system, if the patient is plethoric and robust. Where the perspirations are too profuse, acidulated drinks may be exhibited, keeping the surface moderately cool at the same time. During the intermission, we are to use those medicines which have the power of preventing the return of the paroxysm, and which are for that reason called *febrifuge.* A variety of vegetable and mineral tonics have acquired reputation in this way, but the only two which are at all to depended upon are *bark* and *arsenic.* Whatever be the remedy employed, it is of the utmost importance to prepare the patient for its exhibition; for it seldom happens that the intermittent can be cured until the stomach and bowels are well cleared from undigested or other offending matters; and what is of equal importance, until every other disease is removed which may be increased by tonics. Obstructions of the biliary system and inflammatory conditions of the viscera should be carefully attended to, or the subsequent treatment may be injurious instead of beneficial. The practitioner should be especially on his guard against administering bark when there is the smallest degree of local inflammation.

"The next remedy is arsenic, which is in very general use, but is much inferior to the bark, both in efficacy and safety. Its effects should be cautiously watched, as it proves a dangerous remedy in an over-dose, by producing inflammation of the bowels. The truth is, that in obstinate cases, arsenic will frequently fail to overcome the ague, unless given in doses so large as to induce danger of its poisonous effects."

Burns.—Compare our simple and always successful practice, page 135, with the following treatment by Surgeons:—

"There has been great want of unanimity among surgeons, with respect to the treatment of burns, which has been the subject of some preposterous views and much empirical practice. The true cause of the inconstancy of practitioners to the ordinary principles of their art in this instance appears to be, that *slight* burns have a strong disposition to get well of themselves, and generally do so under any treatment that is not extravagantly bad; while *severe* burns are a most intractable class of injuries, and too frequently prove fatal in spite of the best treatment. Hence surgeons, disheartened at the want of success attending the application of common scientific principles, have had recourse to plans of treatment which, though they may be apparently sanctioned by the facility of cure in the slighter cases, amount in reality to prescribing for an abstraction, instead of the individual case before us; a proceeding which has never led, and never can lead, to general success in any department of the healing art."

"Dropsical Disease.—The use of diuretics is so naturally indicated, that they have been employed in this and other forms of dropsy from a very early period. It is to be observed, with respect to this class of medicines, that no one of them, however effectual at first, retains its efficacy for any length of time, and hence that they require to be frequently changed and alternated with one another. It may also be remarked that, in cases of dropsy, unattended with any inflammatory disposition, *digitalis* is usually found to be more serviceable than any other diuretic.

"The employment of purgatives, and especially the *hydrogogues,* when they are not too weakening, is recommended by constant experience. The alternation of diuretics with purgatives, so that the full operation of both may be continued without overpowering the patient, has frequently been found the most effectual method of evacuating the fluid. Many practitioners have joined chalybeates with diuretic medicines; and it has been stated as a practical remark, without, however, any attempt at explanation, that the effect upon the kidneys is generally greater in consequence of this combination. In other instances, the use of tonics and chalybeates has been advised, as if to counteract the debilitating effect of hydrogogue medicines. Mercury is a remedy so generally used in dropsy, and so frequently serviceable, that it calls for particular notice: it is employed as much to remove any enlargement or obstruction of the viscera on which the dropsical tendency may be supposed to depend, as for the purpose of stimulating the absorbents and equalizing the circulation. Profuse salivation, however, should be carefully avoided, on account of its debilitating effects on the constitution. The use of the blue pill, carried far enough to produce a slight effect on the mouth, sometimes produces very beneficial effects; and the combination of this medicine with squill, digitalis, and other diuretics, is often found to increase their effect upon the kidneys."

In the above extract, all attempts at cure, the vast importance of using the powerful means, by acting on the skin and opening its millions of pores, is almost lost sight of. And mark the vague plans laid down. It is evident they have no confidence in the prescriptions. Compare our practice, page 124.

"Atrophy, or Waste.—The treatment of atrophy will, of course, involve a most scrupulous attention to the diet and habits of the patient. The bowels should be kept regular; mercurial alteratives may sometimes be required; and the vegetable and mineral tonics used in dyspepsia may be had recourse to, according to the peculiarity of the case: cleanliness, fresh air, and moderate exercise are quite indispensable; and in many instances, where the patient has suffered from the privation of these, their restoration alone will be sufficient for the cure. Cold bathing, where it is not contra-indicated, will be found a powerful auxiliary. The atrophy of old age is to be met by the most nutritious food, wine, and warmth."

Here, again, the poor bowels are to be scoured. Some of this prescription is sensible enough, leaving out the physic.

Pills of Gold.—The following description of the nature and action of this medicine will suggest to the reader what the danger must be to patients, in having such stuff administered to them, and especially by careless practitioners:—

"*Pills of the Oxide of Gold.*

"Extract of the bark of mezereon root . . .	2 gros.
"Oxide of gold by potass	6 grains.

"Mix carefully, and divide into 60 pills. The six grains of oxide may be replaced by one grain of the triple muriate.

"M. Chrestien recommends these pills in scrofula and lymphatic congestions. He commences with one per diem, and gradually rises to eight."

"ACTION OF GOLD ON THE ANIMAL ECONOMY.—Four preparations of gold are now principally employed in medicine; namely, the chloride of gold, the chloride of gold and sodium, the per-oxide of gold, and the oxide formed by tin, or the *purple powder of Cassius*. Finely divided gold has also been employed.

"According to Orfila, three-quarters of a grain of muriate of gold, dissolved in a gros of distilled water, and introduced into the jugular vein of a large strong dog, produced difficult and stertorous respiration, symptoms of suffocation, and slight vomiting, all which grew worse, until they ended in death. In another experiment, half a grain of the deutro-muriate, dissolved in two gros and a half of distilled water, was injected into the jugular vein of a small dog: the symptoms here supervened with frightful rapidity, and in four minutes the animal was dead. The third experiment was on a strong dog, and two grains of the salt were dissolved in a gros and a half of distilled water: in this instance the animal died in three minutes.

"On opening the bodies of these animals, the poison was found to have more particularly acted on the respiratory and circulating organs, and eminently on the blood itself. The lungs were livid, gorged with blood, did not crepitate, were wrinkled, of an unnatural colour, and scarcely floated on water. The heart was violet-coloured, the left cavities being filled with black blood, the right ventricle contracted. So rapid had been the action of the salt on the blood, that on opening the crural artery, a few moments after death, a reddish-brown blood, quickly becoming black, flowed from it. The mucous membrane of the alimentary canal was not affected.

"M. Orfila has also introduced chloruret of gold directly into the stomach of several animals, in order to ascertain its immediate effects on that organ. By an opening made in the œsophagus, three grains of chloruret were introduced into the stomach of a small dog; the animal languished for two days, and perished on the third. Another dog was made to swallow a solution of ten grains of muriate of gold, in an ounce of distilled water; the animal vomited thrice, and foamed at the mouth: two days after he was able to eat; on the fourth day he refused food, and died on the night of the seventh. In the first animal the mucous membrane of the stomach was found inflamed, red, and ulcerated: in the second it was also ulcerated, and in a state of suppuration. In both animals the muriate had acted in a manner resembling that of corrosive substances.

"M. Chrestien states, that the muriate of gold is much more active than corrosive sublimate, but does not irritate the gums to the same extent: given in the dose of a tenth of a grain per diem, it occasioned in one instance a smart fever. The frequency of the pulse is considerably increased, and a general excitation prevails. This excitation, which he deems essential to the success of the remedy, never involves any injurious disturbance of the functions, if kept within due limits. The mouth, tongue, appetite, and stools, continue to be natural: the urine and transpiration are generally increased. If the dose be pushed too far, however, there is risk of producing a general erethism, and inflammation of some organ. The fever caused by this is accompanied with an unusual and continued heat of the skin.

"According to the same author, the general effects of hydrochlorate of gold and sodium are a sense of internal heat, headache, dryness of the mouth and throat, anxiety, gastric irritation, constipation, or diarrhœa, and quickening of the circulation. M. Magendie was once consulted by a patient, to whom muriate of gold had been injudiciously administered. Though he had only taken the tenth of a grain in a cup of milk for eight consecutive days, he was seized, at the end of that time, with a most intense gastritis, accompanied with numerous nervous symptoms, such as cramps, and acute pains in the limbs, tremors, and sleeplessness. When this irritation was allayed, there still remained extreme heat of the skin, want of sleep, and fatiguing erections. Notwithstanding a most severe diet, this state of excitement still existed at the expiration of three years, and the patient was unable to take wine even when considerably diluted."

Bronchitis.—I quote the following, to show the very opposite principle we act upon in our mode of cure. Here is, again, the universal panacea, purging the bowels, cleaning them out, and with that operation taking life out too from the patient, whose cause of disease is the lowered vitality of the organic power. No wonder this disease is so difficult of cure in the doctor's hands. Dr Hooper says:—

"In that form of bronchitis called peripneumonia notha, and other cases which resemble it in the asthenic character of the symptoms, bleeding is never admissible to a large extent, and often not at all. In epidemic bronchitis, also, this remedy must be used with the utmost caution, even though symptoms of strong excitement should accompany the onset of the disease. After blood-letting, where this is deemed necessary, a smart purgative should be given—as a dose of calomel and jalap; and the bowels should, of course, be kept sufficiently free throughout the disease. The utility of purgatives is most conspicuous in the bronchial affections of children; for these are often connected with an extremely disordered state of the abdominal secretions, which is no sooner corrected by a calomel purgative than the bronchial symptoms disappear or are remarkably alleviated. Emetics are much recommended by some authors at the commencement of acute bronchitis: in the case of young children they are almost always serviceable, by exciting expectoration, which infants do not perform as a voluntary act; in adults their beneficial effect is much less marked, and they are, on the whole, little to be depended upon.

"The application of blisters is objected to by some, on the ground that, before they rise, they increase by their irritation the febrile state of the system, and thus augment the bronchial inflammation. This may be true in some cases, but it is by no means universally so; blisters, however, are applied both more safely and more advantageously, when the symptoms of febrile excitement have considerably abated, and the disease is assuming somewhat a chronic form.

"In the state of collapse and extreme debility, all antiphlogistic measures must be entirely laid aside, and we must have recourse to stimulants in order to rouse the brain from the torpor occasioned by the circulation of dark-coloured blood, and to make the patient expectorate the mucus which is continually accumulating in the lungs, and threatening him with suffocation. Alcoholic stimuli require to be given with judgment, since, notwithstanding the debility, inflammation is still going on. Carbonate of ammonia, which has the peculiarity of stimulating the nervous system, without increasing the vascular actions, is here a very valuable auxiliary, and is, moreover, in such cases, one of the most effectual expectorants. It may be given in full doses. Camphor in large doses is also a valuable stimulant in such cases; and with these may be combined the more stimulating expectorant gum resins, as ammoniacum, galbanum, &c. Dr. Copland strongly recommends the external use of turpentine. 'In some cases of this description,' says the distinguished physician referred to, 'I have seen much advantage derived from applying over the epigastrium and lower part of the chest a flannel wrung out of hot water, and immediately afterwardy soaked with the spirterebinth, and allowing it to remain until severe burning heat of the skin is produced by it. If suffocation be threatened, either by the profuseness of the secretion, by its difficult expectoration, or by exhaustion of the vital energy; and if we be, as we then unfortunately are, at a loss for any probable means of success; this will sometimes have a remarkable effect, and save the life of the patient, particularly when assisted by the internal use of camphor, ammonia, &c."

SPITTING OF BLOOD.—Here, again, the doctors prescribe local evacuations and blisters; the bowels to be well cleared out; digitalis, or foxglove, to stop the strong action of the heart; antimony, in nauseating doses; emetics, alum kino, and acetate of lead, &c., is added; but surely the list is long enough to settle any mortal with an ordinary constitution.

"SPITTING OF BLOOD.—An expectoration of florid or frothy blood, preceded usually by heat or pain in the chest, irritation in the larynx, and a saltish taste in the mouth. It is sometimes produced by congestion, or a plethoric state of the vessels of the lungs, which is the most common cause of an idiopathic hæmoptoe, and which also obtains in diseases of the heart, especially in hypertrophy of the right ventricle, which is accordingly a common cause of hæmoptysis. Thus produced, it is called *hæmoptysis plethorica;* sometimes it is produced by external violence, and this is called *hæmoptysis violenta;* calculous matter, irritating and eroding the vessels, causes the species denominated *hæmoptysis calculosa;* vomicæ bursting in the lungs, and ulcerating the vessels, give rise to the *hæmoptysis phthisica;* and when the bleeding is caused by the suppression of some customary evacuation, it is termed *hæmoptysis vicaria.* Hæmoptysis is readily to be distinguished from hæmatemesis by the blood being coughed up in one instance, and vomited in the other: in hæmatemesis, also, the blood is thrown out in considerable quantities, and is, moreover, of a darker colour, more grumous, and mixed with the other contents of the stomach; whereas blood proceeding from the lungs is usually in small quantity, of a florid colour, and mixed with a little frothy mucus only.

"A spitting of blood arises most usually between the ages of sixteen and twenty-five, and may be occasioned by any violent exertion, either in running, jumping, wrestling, singing loud, or blowing wind-instruments; as likewise by wounds, plethora, weak vessels, hectic fever, coughs, irregular living, excessive drinking, or a suppression of some accustomed discharge, such as the menstrual or hæmorrhoidal. It may likewise be occasioned by breathing air too much rarefied to be able properly to expand the lungs.

"Persons in whom there is a faulty proportion, either in the vessels of the lungs or in the capacity of the chest, being distinguished by a narrow thorax and prominent shoulders, or who are of a delicate make and sanguine temperament, seem much predisposed to this hæmorrhage; but in these, the complaint is often brought on by the concurrence of the various occasional and exciting causes before mentioned.

"A spitting of blood is not, however, always to be considered as a primary disease. It is often only a symptom; and in some disorders, such as pleurisies, peripneumonies, and many fevers, often arises, and is the presage of a favourable termination.

"Sometimes it is preceded, as has already been observed, by a sense of weight and oppression at the chest, a dry tickling cough, and some slight difficulty of breathing. Sometimes it is ushered in with shiverings, coldness at the extremities, pains in the back and loins, flatulency, costiveness, and lassitude. The blood which is spit up is generally thin, and of a florid red colour; but sometimes it is thick, and of a dark or blackish cast; nothing, however, can be inferred from this circumstance, but that the blood has lain a longer or shorter time in the chest before being discharged.

"It was long supposed that the discharge of blood from the lungs was always connected with the rupture of vessels; but it is now well ascertained that, in many cases of hæmoptysis, the blood simply exudes from the bronchial membrane without any breach of structure, and that even a fatal hæmorrhage may arise from this source.

"Unless the discharge of blood be excessive, hæmoptysis is seldom attended with immediate danger to life, but it is, nevertheless, generally a formidable symptom, as being connected with some organic lesion of the thoracic viscera. Sometimes the hæmorrhage is so profuse as to be fatal; and occasionally, owing to the rupture of a large vessel, the lungs are inundated with blood, and the patient dies instantaneously.

"Sometimes, where there is pain in the chest, local evacuations and blisters may be useful. The bowels should be well cleared with some cooling saline cathartic, which may be given in the infusion of roses. Digitalis is also a proper remedy, particularly where the pulse is very quick, from its sedative influence on the heart and arteries. Antimonials in nauseating doses have sometimes an excellent effect, as well by checking the force of the circulation, as by promoting diaphoresis; calomel also might be added with advantage; and opium, or other narcotic, to relieve pain and quiet cough, which may perhaps keep up the bleeding. Emetics have, on some occasions, been successful; but they are not altogether free from danger. In protracted cases, internal astringents are given, as alum, kino, &c., but their effects are very precarious: the superacetate of lead, however, is, perhaps, the most powerful medicine, especially combined with opium, and should always be resorted to in alarming or obstinate cases, though, as it is liable to occasion colic and paralysis, its use should not be indiscriminate; but it acts, probably, rather as a sedative than astringent. Sometimes the application of cold water to some sensible part of the body, producing a general refrigeration, will check the bleeding. When the discharge is stopped, great attention to regimen is still required, to obviate its return, with occasional evacuations: the exercise of swinging, riding in an easy carriage, or on a gentle horse, or especially sailing, may keep up a salutary determination of the blood to other parts: an occasional blister may be applied, where there are marks of local disease, or an issue or seton perhaps answer better. Should hæmoptysis occasionally exhibit rather the passive character, evacuations must be sparingly used, and tonic medicines will be proper, with a more nutritious diet."

Bleeding for inflammation is diametrically opposed to the recovery or restoration of nervous vitality, and nothing but the restoration of this vis vitæ, or power of life, can subdue inflammatory action; yet the plan of further reducing that power, by prostrating the system, is now in full practice: the quantity of blood in the body may be reduced for a few hours, or a day or two, but nature soon fills the vacuum, but not with such good blood as before; she has been weakened, and the power to make it is reduced. Bleeding always lays the foundation of weakened vascular action, and of disease to be developed on the first trial of the constitution. The remedies of the faculty for inflammation are as follows:—

"In order to be efficient in controlling inflammation, full bleeding should be carried to the extent of making a great and evident impression on the vascular system, especially as indicated by the change in the number and beats of the pulse, by the appearance of the countenance, by the relief afforded to the urgent symptoms of the disease, especially the pain, and by the amelioration effected in the functions of the affected organ. If these objects be not attained by one blood-letting of considerable amount, it is requisite to repeat the evacuation; and in some instances of visceral inflammation, the extent to which the evacuation requires thus to be carried, both in amount and by repetition, is very great. It may be from 60 to 100 ounces in adults. Blood-letting in this manner operates at once on the local affection and on the general disorder.

"In most instances of inflammation seated in any important organ, with evident symptoms of symptomatic fever, one, two, or three large blood-lettings from the system will be adequate to subdue the disease. In some instances, however, in which the symptomatic fever is either not violent in proportion to the local affection, or is already subdued by general evacuation, or in which it is inexpedient to carry general evacuation farther, it becomes necessary to draw blood from the vessels of the inflamed part, or from the nearest accessible region to it; for instance, from the temples, scalp, frontal or occipital regions, in inflammation of the brain or its membranes; from the surface of the chest, sides, or the inter-scapular region, in inflammation of the lungs, or their bronchial membrane; and from the surface of the belly, in the case of inflammatory symptoms in the peritoneum, or any of the organs invested by that membrane. These local evacuations, which may be accomplished either by the application of leeches, or by scarifying and cupping, or by numerous minute punctures, not only tend to unload directly the vessels of the part, and, by thus relieving them of part of their contents, enable them to propel the residual mass more easily; but, by thus diminishing directly swelling, and abating distension, tend materially to relieve painful sensations, heat, and other symptoms, and thereby tend to alleviate sometimes the signs of general disorder.

"The management of the symptomatic fever of inflammation is to be conducted upon the general principles already explained in considering the treatment of simple continued fever, and may be briefly designated under the general name of the antiphlogistic treatment. These consist, together with blood-letting, of low diet, the use of diluents, purgatives, emetics in nauseating or diaphoretic doses, especially tartar-emetic and other antimonials, mercurials in alterative doses, especially calomel combined with opium, and such sedative medicines as foxglove and lead.

"Emetic tartar, in very large doses, has been employed of late years in the treatment of several inflammatory diseases, especially in inflammation of the lungs; and some are of opinion that it possesses a specific power, since it has been observed to act beneficially without producing any sensible effect. In general, however, it is a most depressing agent; and, even admitting it to possess all the efficacy which its advocates claim for it, it may fairly be doubted whether, in most cases, a severe hypercathasis, and keeping the patient in a state approaching to syncope for a length of time, may not leave more permanent debility than a reasonable abstraction of blood."

Let the reader remark the following elaborate investigation on the nature of inflammation, and see how the physicians employ their time in such investigations, which lead to nothing in the way of cure; and, moreover, no two agree in their views. We put on hot flannel fomenting pads on the parts, or give a fomentation wet pack, which very soon settles the inflammatory action, and is worth more than all these learned discussions to the sufferer.

"In place of the mechanical doctrine of Boerhaave, Cullen substituted his favourite hypothesis of spasm; for he admitted the increased action of the vessels in local inflammation, while he was aware that, without some counteracting circumstance, this increased action would produce effects totally inconsistent with the actual phenomena. Haller was quite aware that an increased action of the arteries must have a tendency to diminish their capacity, and employed this consideration as an argument against the muscularity of the capillaries. We shall, however, find, upon due reflection, that the spasm of Cullen is equally unfounded, and perhaps even less intelligible than the lentor and *error loci* of the Boerhaavians; and, accordingly, his explanation has been generally regarded as incomplete; yet since his time no regular attempt has been made to reconcile the increased action of the vessels with their enlarged diameters.

"In this dilemma, a totally different view of the question has been taken, according to which, local inflammation is to be attributed to a diminished action of the capillaries. This hypothesis, which appears to have been originally proposed by Vacca, an Italian physiologist, about the middle of the last century, was first brought forwards in a clear and consistent form by Mr. Allen, who for some years lectured in Edinburgh on the animal economy: it was adopted by Dr. Wilson Philip, who performed a series of experiments in support of it, and has been since embraced by Dr. Parr, Dr. Thomson, and Dr. Hastings (On the Mucous Membrane, p. 71, *et seq.*). Dr. Thomson and Dr. Hastings likewise supported the hypothesis, by numerous experiments. Although Philip, Thomson, and Hastings agree in the main point, that inflammation essentially consists in diminished action of the capillary arteries, they differ respecting the actual state of the vessels. Dr. Philip supposed that the constant effect of inflammation is to dilate the vessels, and to diminish the velocity of their contents. (Treatise on Febrile Diseases, v. iii. p. 15, *et seq.*; also Preface to 4th ed. p. vii.; and Med. Chir. Trans. v. xii. p. 407.) Dr. Thomson concludes that the velocity is sometimes increased, and sometimes diminished. (Lect. on Inflammation, p. 89); while Dr.

Hastings adopts the opinion of Dr. Philip, that, in the proper inflammatory state, the velocity of the fluids is always retarded. (On the Mucous Membrane, p. 91, *et alibi.*) It may be worth noticing, that the article 'Inflammation,' in the Dict. des Scien. Méd. t. xxiv. p. 525, *et seq.*, written by Boyer, in 1818, contains no account of either the hypothesis or experiments of the English physiologists: inflammation is referred, according to the old doctrine, to the increase of vital action."

POISONS.—The following definition of poisons will give some idea of the danger to life by their administration, in the form of medicine, even in the most careful hands:—

"POISON. *Venenum, Toxicum.*—That which, when taken into the human body, or applied externally, uniformly effects such a derangement in the animal economy as to produce disease, may be defined a poison. It is extremely difficult, however, to give a definition of a poison; and the above is subject to great inaccuracy.

"Poisons are divided, with respect to the kingdom to which they belong, into animal, vegetable, mineral, and halituous, or aerial.

"Poisons, in general, are only deleterious in certain doses; for the most active, in small doses, form the most valuable medicines. There are, nevertheless, certain poisons which are really such in the smallest quantity, and which are never administered medicinally; as the poison of hydrophobia or the plague. There are likewise substances which are innocent when taken into the stomach, but which prove deleterious when taken into the lungs, or when applied to an abraded surface: thus carbonic acid is continually swallowed with fermented liquors, and thus the poison of the viper may be taken with impunity; whilst inspiring carbonic acid kills, and the poison of the viper, inserted into the flesh, often proves fatal.

"Several substances also act as poisonous when applied either externally or internally; as arsenic.

"When a substance produces disease, not only in mankind, but in all animals, it is distinguished by the term *common poison;* as arsenic, sublimate, &c.; whilst that which is poisonous to man only, or to animals, and often to one genus merely, is said to be a *relative poison;* thus aloes are poisonous to dogs and wolves; the *phellandrium aquaticum* kills horses, whilst oxen devour it greedily and with impunity. It appears, then, that substances act as poisons only in regard to their *dose, the part of the body they are applied to,* and the *subject.*

"Poisons have been arranged by Orfila into four classes, namely, *irritant, narcotic, narcotico-acrid,* and *septic,* or putrefiant. Dr. Christison, with apparent propriety, excludes the last or septic class, thus reducing poisons to three classes. The following enumeration of poisons is taken from his excellent treatise:—

"I. IRRITANT POISONS.—The characteristic operation of these is to excite inflammation of the alimentary canal in some part, or throughout the whole of its course. To this class belong—

"The three mineral acids, phosphorus, sulphur, chlorine, iodine, hydriodate of potash, bromine, oxalic acid, the fixed alkalis, nitre, alkaline and earthy chlorides, lime, ammonia and its salts, alkaline sulphurets, the compounds of arsenic, the compounds of mercury, the compounds of copper, the compounds of antimony, the compounds of tin, silver, gold, bismuth, chrome, and zinc, the compounds of lead, baryta, euphorbia, castor oil seeds, physic nut, bitter cassada, manchineel, croton, bryony, colocynth, elaterium, ranunculus, anemone, caltha, clematis, trollius, mezereon, cuckoo-pint, gamboge, daffodil, jalap, savin, cantharides, poisonous fish, venomous serpents and insects, diseased and decayed animal matter, mechanical irritants.

"II. NARCOTIC POISONS.—These are such as produce chiefly, or solely, symptoms of disorder of the nervous system. To this class belong—

"Opium, hyoscyamus, lactuca, solanum, hydrocyanic acid; the vegetable substances which contain hydrocyanic acid, bitter almonds, cherry-laurel, peach, cluster cherry, mountain ash; carbazotic acid, nitric oxide gas, chlorine gas, ammoniacal gas, muriatic acid gas, sulphuretted hydrogen, carburetted hydrogen, carbonic acid, carbonic oxide, nitrous oxide, cyanogen, oxygen.

"III. Narcotico-acrid Poisons.—These possess a double action, being both local irritants, like those of the first class, and producing a remote effect on the nervous system, like those of the second. To this class belong—

"Nightshade, thornapple, tobacco, hemlock, water hemlock, hemlock dropwort, fool's parsley, monk's-hood, black hellebore, ipecacuan, squill, white hellebore, meadow saffron, fox-glove, strychnia, nux vomica, St. Ignatius's bean, false angustura, camphor, cocculus indicus, upas antiar, coriaria myrtifolia, poisonous fungi, poisonous mosses, secale cornutum, mouldy bread, darnel grass, seeds of lathyrus cicera, seeds of the bitter vetch, seeds of the common laburnum, alcohol, ether, some empyreumatic oils."

All the foregoing poisons are the substances employed to cure, or rather poison, the body.

Salivation.—For the information and warning of the public, the following short description may be of use:—

"Mercurial Ptyalism.—In whatever mode introduced into the system, quicksilver generally produces salivation, and that after a short time, and even from a small quantity. The discontinuance of mercury is the cure: it soon subsides: but it is often attended with much inconvenience; as a high degree of irritation, not only of the mouth and fauces, but of the system generally. The common course of symptoms is this: the mouth feels uncommonly hot, and there is a coppery or metallic taste; the lingual and sublingual glands swell; aphthous vesicles appear, and terminate in minute and offensive ulcerations; the tongue swells; the throat becomes sore; feverishness and sleeplessness supervene, and are often present from an early period of the disease; and, in habits of great irritability, the surface of the body is, in particular parts or wholly, reddened with a peculiar erythematic inflammation, continuous or in patches, to which the names of *hydrargyria* and *erythema mercuriale* have been given by some writers. See *Eczema*. It is not at all understood by what means mercury produces this singular effect on the salivary glands.

"In attempting the cure of mercurial salivation, the attention is to be directed to the local state of the fauces, and the general state of the system. The use of all mercurials is to be avoided, both externally and internally. The patient is to be moved into a pure air, and warmth is to be guarded against, as well as exposure to cold: but there is no reason why the person should not be exposed to pure and open air in the summer time. *The bowels are to be kept soluble with saline aperients.* Acidulated gargles of barley-water, with nitre, citric acid, and the like, will often be sufficient, or very dilute compound infusion of roses; but the best of all gargles by far is the chlorate of soda or lime, so diluted as not to produce more than just a sensible sting in the mouth."

Dr. Hooper's opinion on Hydropathy:—

"Cold Water Cure.—The 'cold water cure,' as it is called, was invented by Vincent Priessnitz, the son of the proprietor of a small farm at Graefenberg, in Silesia, who commenced practicing in his peculiar manner in 1829.

"The cold water cure consists in the external and internal administration of cold water, according to various processes, for a description of which we must refer to the treatises on the subject.

"These administrations of cold water are accompanied with many circumstances highly conducive to health; such as abundance of exercise in a pure air, a temperate mode of living, and early hours. In some cases of chronic disease, therefore, the cold water cure, and the salubrious habits which accompany it, have been very advantageously substituted for the senseless administration of drugs that were not required, and the late hours and artificial modes of life prevalent in large towns."

THE KIDNEYS—It may be interesting to some unacquainted with the works on this subject, to have a short account of the wonderful and delicate structure of these organs. From a view of the two oblong pieces of muscle, who could imagine such machinery could be contained in them for such a complicated process? All this points to the necessity of living in a rational, natural manner, and not risk bringing these beautiful structures into a state of disease. The remedies doctors prescribe for the restoration of these organs when diseased is quoted at the end, and which are quite in accordance with their usual plans—doing evil that good may come; and one doctor of one opinion, another the opposite.

"KIDNEY. (*Ren.*)—An abdominal viscus, shaped like a kidney-bean, that secretes the urine. There are two kidneys, which are glandular bodies of a pale red colour, situated in the upper and back part of the abdomen, in the lumbar region. They are placed one on each side of the spine, extending from the eleventh pair of ribs to near the crista of the ossa ilia, and rest upon the diaphragm, large psoæ, quadrati lumborum, and transversales abdominis. The right kidney is situated at the under and back part of the large lobe of the liver, behind the colon, and is commonly a very little lower than the left, being supposed to be affected by the great lobe of the liver. The left kidney is placed at the under and back part of the spleen, and behind the left portions of the stomach, pancreas, and colon. The kidney is between four and five inches in length, but considerably less from the outer to the inner side, and less still from before backwards. It is rounded anteriorly, flattened posteriorly, convex and uniform at its outer margin, and has a deep depression or sinus towards the vertebræ, surrounded with unequal edges, where the renal vessels and nerves enter. It is a little broader behind than before, and a little broader and more curved above than below; from which circumstances, but more particularly from the disposition of the vessels, to be afterwards mentioned, it is easy to distinguish the right from the left kidney when taken out of the body. The right kidney is connected to the liver and duodenum, the left to the spleen, and both to the muscles on which they are placed, and to the renal glands and colon, by cellular substance, and by the peritonæum; which last, reflected from the liver and spleen to the kidneys, have by some been called the *ligaments* of the *kidneys*. They are also connected to the aorta and vena cava by their blood-vessels, and to the bladder of urine by the ureters. They accompany the motions of the liver and spleen in the different states of respiration. Each kidney is surrounded by loose cellular substance, which commonly contains a considerable quantity of fat, from which it is termed *tunica adiposa*. The *tunica adiposa* covers not only the kidney, but the large vessels, and defends them from the pressure of the surrounding viscera. Under the tunica adiposa, there is a *membrane* composed of the original proper coat and cellular substance incorporated, which adheres closely to the kidney, and is reflected over the edges of the sinus, to be joined to the pelvis and large vessels. The surface of the kidney is commonly smooth and uniform, though sometimes it is irregular, in consequence of the lobes which originally form it not being completely incorporated. It consists of an outer part, called *cortical*, and an inner, termed *medullary*. The *cortical substance*, termed also *secerning*, surrounds the kidney, and is about a fourth or third part of an inch in thickness: it likewise sends in partitions, which separate the medullary parts from each other. The *medullary,* termed also *tubular* or *uriniferous substance,* is more compact and of a paler colour than the former, and is divided into a number of distinct columns, each of which terminates in a projection called *papilla,* vel *processus mammillaris.* The *papillæ* are merely the continuation of the uriniferous part, though frequently considered as a third division of the substance of the kidney. Each kidney has one, and sometimes more *arteries,* of great proportional size, which run transversely from the aorta, and a *vein* still larger than the artery which terminates in the cava: they enter at the sinus of the kidney, and are included in cellular substance, which accompanies them throughout their course. The right renal artery is longer than the left, in consequence of the vena cava, behind which it passes, being placed upon the right side of the aorta. The artery, as it approaches the kidney, is divided into branches which are afterwards minutely distributed through the cortical substance, forming arches and anastomoses; but these are found to be much less frequent than are commonly described; for a fine injection thrown into a branch of the artery fills only the ramifications belonging to that branch. The small branches, after turning and winding in various directions, pass partly towards the surface of the kidney, where they form irregular *stars,* some of which supply the proper membrane. Others turn inwards in a waving direction, and form *corpuscles,* or *acini,* disposed after the manner of *clusters of small berries,* which can only be seen distinctly by the assistance of glasses, after a minute injection. The *corpuscles* were considered by Dr. Nichols as the globular terminations of blood-vessels, and termed by him *Globuli arteriarum termini;* but these globuli were afterwards observed by Mr. Hewson, and others, to consist of small vessels intimately intermixed. A fine injection thrown into the artery sometimes appears to fill the uriniferous tubes, and thereby to imitate the secretion of urine; but this experiment is more readily performed on some of the brute creation, as the horse, where the structure of the kidney seems to be more simple, than in man. The *veins,* returning from the extremities of the arteries, unite in the cortical substance of the kidney. The branches of the renal vein are much larger than those of the artery; they communicate freely, especially on the surface of the kidney, but correspond with them in their course. They form a large trunk on each side, which lies anterior to the corresponding artery, and runs transversely to the cava: the left, which is the longer of the two, passing across the fore part of the aorta. The *lymphatics* of the kidney run from without inwards, and terminate in the lumbar glands, and afterwards in the thoracic duct. The superficial lymphatics are so small as seldom to be seen excepting in the diseased state of this organ. The *nerves* are from the semilunar ganglion, formed by the great sympathetic and eighth pair. They compose a plexus which surrounds the blood-vessels, and accompanies them in the kidney. From the minute extremities of the renal artery, in the corpuscles situated in the cortical substance, the *uriniferous tubes* arise. They are mixed with some extremely small blood-vessels, and constitute the medullary substance of the kidney. By degrees they unite into larger tubes, which run in a radiated manner, the direction being from the outer edge or circumference, towards the sinus, or inner part of the kidney. The radiated tubes, becoming still larger in their passage, terminate in the *papillæ,* which are of a compressed conical form, and at a little distance from each other. The *papillæ* are twelve or more in each kidney, the number varying according to that of the original lobes of which the kidney is composed, and likewise from some of the papillæ being occasionally incorporated with each other. Upon the points of the papillæ are the terminations of the uriniferous tubes—large enough to be distinguished by the naked eye—through which the urine distils from the substance of the kidney. Round the root of each papilla, a membranous tube arises, termed *infundibulum,* or *calix,* which receives the urine from the papilla. The *infundibula* are commonly the same in number with the papillæ; the number, however, varying in different subjects, two or more of the papillæ sometimes opening into the same infundibulum. The infundibula join into two or three large trunks, at the sinus of the kidney, which afterwards form a dilatation of considerable size, of the shape of an inverted cone, and termed *pelvis* of the kidney. The *pelvis* is placed between the principal branches of the renal artery and vein, partly within, but the greater part of it without the body of the kidney, and contracts into a long tube, about the size of a goose-quill, called *ureter*.

"The remedies specially adapted to the albuminous condition of the urine have not hitherto been determined with the accuracy which is desirable. The pain and tenderness of the loins, so often present, suggest the propriety of relieving the tension of vessels by cupping-glasses, but general blood-letting is contra-indicated by the exhausting tendency of the disease, when it occurs in its chronic form. The dropsical accumulation must be removed, as far as possible, by purgatives and diuretics. The secretions of the skin are to be encouraged by the use of warm baths and diaphoretics. Dr. Osborne remarks that, when the renal affection is uncomplicated with other organic mischief, the dropsy will disappear on restoring the functions of the skin. Opinions vary as to the propriety of employing mercury in the granular degeneration of the kidney. Instances of recovery are recorded after severe salivation, but the general impression is, that the mercurial influence is prejudicial rather than salutary. It is not improbable that more enlarged experience will unfold some remedy peculiarly appropriate to the treatment of albuminuria. The natural tendency of so many drugs to pass off by the kidney, and to influence its secretion, holds out great encouragement to attempt a more effectual treatment of this disorder than any which has been yet devised.—*Gregory*."

Burning with Moxa.—A patient came to us with lame knees of long standing; and amongst many painful operations, had undergone blistering, puncturing, caustic, issues. This curious but painful plan was tried, and resulted in deep ulcers, which laid the patient up in bed many months, but did not burn the disease out, or strengthen the joints.

"A soft lanuginous substance, called *Moxa*, is prepared in China and Japan, from the young leaves of this species of mugwort, by beating them when thoroughly dried, and rubbing them between the hands, till only the fine fibres are left. Moxa burnt upon the skin has been celebrated for many centuries in the East for the prevention and cure of a variety of disorders; a little cone of it laid upon the part, previously moistened, and set on fire at the top, burns gradually down with a glowing heat, and produces a slough, the separation of which is promoted by applying a little garlic, and the ulcer is either healed up when the eschar separates, or kept running for a length of time, as different circumstances may require. In Europe, the same operation is practised with a cylinder made of cotton wool, or the pith of the great sun-flower soaked in a solution of nitre and dried. In order to limit the inflammation and sloughing, liquor ammoniæ is usually applied to the part immediately after the operation. The moxa is applicable in every case where powerful counter-irritation is desired. In France it is much used, but as it seems to have no advantage over the caustic issue, and is more alarming to the patient, it is seldom resorted to by British practitioners."

Hip Disease.—The following, from Hooper, may be interesting to some, and show the barbarous treatment used in attempting to cure, but which means never did or can cure such cases. We have had cases entirely cured by our simple nourishing plans:—

"The morbus coxarius is a scrofulous disease nearly allied to white swelling. It most commonly makes its attacks without any apparent cause, before the age of puberty; but the disease is not necessarily confined to youth, as it sometimes occurs in middle life and even in old age, in which cases it can be most commonly traced to a blow. Like other scrofulous affections of the bones, it is of such an insidious nature that in general it has made considerable progress before it is observed, as it is apt to be mistaken either for growing pains or rheumatism. The patient for a long time complains only of a weakness and weariness of the limb, attended with a slight halt in walking, and a particular uneasiness about the knee. There is at this time so little pain in the hip-joint, that the disease has been frequently mistaken for some affection of the knee. But if the diseased limb be compared with the sound one, it will be found much emaciated and considerably lengthened. By the thickening of the soft parts within the joint, in consequence of the inflammation, the head of the bone will be raised to a certain extent from the socket, and this might, at first sight, seem to account for the elongation of the limb; but we shall soon find that this cause is inadequate, as the limb is frequently lengthened to the extent of some inches.

"Mr. Hunter ascribes the lengthening of the limb to the diseased side of the pelvis falling lower than the other; and upon a careful examination, the tuberosity of the ischium will be found to be situated lower than that of the opposite side. This is always the case when the elongation prevails to a marked extent, and can only be ascribable to the oblique position in which the patient places his body in throwing the weight on the sound leg, which he always does, as he is unable to bear any pressure on the diseased limb. Although the patient, in this incipient stage of the disease, actually complains of more pain in the knee than in the hip-joint, it will be perceived that the pain in the knee is not increased upon motion; whereas if the acetabulum be pressed upon, or the joint rudely handled, the pain in it is exquisite. If the nates be examined after the disease has made a little more progress, that of the affected side will be found to be larger, to have lost its natural roundness, and to have acquired a flattened form, all arising from the increased size of the joint, and from the emaciation of the glutæi muscles. When the disease has arrived at this stage, there is considerable pain, on the joint being pressed upon, particularly on the fore part a little below the groin, and towards the outside of the thigh, where the joint is more superficial.

"At this period of the disease, the lymphatic inguinal glands, as in white swelling of the knee, are sometimes enlarged.

"This series of symptoms characterises the inflammatory stage of the disease.

"The second stage is that which is accompanied by or terminates in suppuration, and takes place with greater or less rapidity, according to the activity of the inflammation. When suppuration ensues, the disease generally terminates in one of two ways. Either, after the suppuration is established, the head of the thigh-bone and the acetabulum being carious, an anchylosis takes place without the matter pointing externally; or, the sinovial membrane and capsular ligament ulcerating, the soft parts surrounding the joint inflaming, swelling, and forming an abscess, the matter burst out externally, and a serous fluid is discharged, mixed with curdly flakes. Not unfrequently in this case, the patient dies, exhausted by the profuse discharge and hectic fever.

"From the great irritation which accompanies diseases of the joints, hectic fever sometimes appears early; but its symptoms are most obvious after the formation of matter, and are always greatly increased when the abscess bursts, or is opened by art. When the inflammation within the joint is increasing and running on to suppuration, the pain becomes very acute; the patient is hot and restless during the night; he starts in his sleep; and when the limb is attempted to be moved, he screams in agony.

"In the secondary stage of the disease, when it has terminated in suppuration, there takes place a remarkable retraction or shortening of the limb. The head of the bone is now plainly out of the socket; and, in consequence of the destruction of the cartilages, ligaments, and bone forming the acetabulum, the muscles, more especially those which are implanted into the trochanters, retract the bone and shorten the limb to a considerable extent. When the disease has been of long duration, not only all the soft parts immediately connected with the joint are destroyed, but the caries destroying the acetabulum, penetrates deep into the bones of the pelvis, attacks the head of the femur, and even extends to its neck."

"OF NATURE AND ART IN THE CURE ON DISEASE, BY SIR JOHN FORBES, M.D.—All well-informed and experienced members of the medical profession are painfully aware of the great imperfections of their art, and of its inadequacy to fulfil, in a satisfactory mannner, much that it professes and undertakes to accomplish.

"It is true that, since the period referred to, great advances have been made in some important points of the history of diseases, as in their structural pathology or morbid anatomy, as well as in many of their physiological relations; so that it must be admitted that well-informed practitioners of the present day have a much deeper insight into the exact character of many of the diseases treated by them, than was possessed by their predecessors. It is very remarkable, however, that in regard to one most important part of the history of diseases, that, namely, of their natural course and event, infinitely less progress has been made; insomuch that it may now be affirmed that the practitioners of the present day are, speaking generally, almost as uninformed in this particular as were their predecessors fifty or a hundred years back.

"Such has ever been the want of trust in Nature, and the over-trust in Art, prevalent among the members of the medical profession, that the field of natural observation has been, to a great extent, hidden from them; hidden either actually from their eyes, or virtually from their apprehension. The constant interference of Art, in the form of medical treatment, with the normal processes of disease, has not only had the frequent effect of distorting them in reality, but, even when it failed to do so, has created the belief that *it did so;* leading, in either case, to an inference equally wrong;—the false picture, in the one instance, being supposed to be true; the true picture in the other being supposed to be false.

"With this impression on their minds, it was scarcely possible for practitioners not to form a false estimate alike of the power of Nature and of the power of Art, in modifying and curing diseases; underrating the former in the same proportion as they exaggerated the latter. And the consequence has been that diseases have been treated mainly as if Nature had little or nothing to do in their cure, and Art almost everything. A principle so false, adopted as the ground of action, could not fail to be the source of the gravest doctrinal errors, with practical results of the most deplorable character.

"The following are a few of the many ways in which the ignorance of the public, in regard to several parts of medicine which they are competent to understand, influences injuriously the conduct of physicians:—1. Ignorance of the natural course and progress of diseases which are essentially slow, and not to be altered by any artificial means, often leads the friends of the patient to be urgent with the medical attendant to employ more powerful measures, or at least to change the means used, to give more frequent or more powerful doses, &c. &c. 2. Ignorance of the power of Nature to cure diseases, and an undue estimate of the power of medicines to do so, sometimes almost compel practitioners to prescribe remedies when they are either useless or injurious. 3. The same ignorance not seldom occasions dissatisfaction with, and loss of confidence in, those practitioners who, from conscientious motives, and on the justest grounds of Art, refrain from having recourse to measures of undue activity, or from prescribing medicines unnecessarily; and leads to the countenance and employment of men who have obtained the reputation of greater activity and boldness, through their very ignorance of the true character and requirements of their art. 4. It is the same state of mind that leads the public generally to give ear to the most ridiculous promises of charlatans; also to run after the professors and practisers of doctrines utterly absurd and useless, as in the instance of Homœopathy and Mesmerism, or dangerous, except in the proper cases, as in the instance of Hydropathy. 5. Finally, it is the same ignorance of Nature and her proceedings that often forces medical men to multiply their visits and their prescriptions, to an extent not simply unnecessary, but really injurious to the patient, as could be easily shown.

"It cannot be doubted that juster views of the nature of medical science and of medical art, if once prevalent among the lay public who are well informed, will, like all other knowledge, eventually descend to those who are not so; and thus the progress of rational Medicine will be facilitated, and the hands of those professors strengthened, who have the courage to advocate and practise their art conscientiously, however opposed to vulgar prepossessions and prejudices. When laid open in its native truth and simplicity, Medicine will be found, like other arts and sciences, to possess nothing that is very mysterious or difficult of comprehension, nor anything that should prevent its principles, at least, from becoming one of the subjects of ordinary study with men who have received such an education as enables them, as amateurs, to derive profit and enjoyment from analogous studies, such as chemistry, physics, geology, and natural history in all its branches. To such men, anatomy and physiology, and the principles of medical science and of the medical art, will be found to yield instruction and amusement of the highest and best kind, to say nothing of the great advantage such knowledge must be to themselves and friends, not only in regard to the preservation of their health, but in regard also to their conduct when afflicted with disease. It will be at once more expedient and more accurate to state that the object of the work is not simply to exhibit, in an independent manner, the general fact of the respective and relative powers of Nature and Art in curing diseases, but to establish the more special fact that Nature possesses vastly greater powers than Art in curing diseases, and, consequently, that its extent is beyond the common belief of the junior classes of medical men, and men in general.

"Perhaps there is hardly anything in the whole range of ordinary every-day knowledge—that is, knowledge with which every one is more or less conversant and familiar—which is so little understood by men in general, as the real nature of the medical art and its actual power in ministering to the relief and cure of diseases. Respecting this latter point, its *power*, the ignorance of the lay public is literally extreme. The belief commonly entertained is that, in the vast majority of the cases of disease in which the patient is restored to health, the principal if not the sole agent in this restoration is the *artificial treatment*, that is, the drugs and other remedies prescribed by the medical attendant. By such persons, Nature, or, in other words, the inherent powers of the animal economy, are either entirely ignored as having any share in the result, or their share in it is regarded as extremely slight and unimportant.

"In acute diseases of short duration more particularly, as in many fevers and inflammations, the abatement of the severe symptoms which often ensues speedily after the administration of remedies is invariably attributed to the active measures usually had recourse to in such cases: a conclusion which, however false, can hardly be wondered at under the circumstances. When the observer sees bleeding, blistering, vomiting, purging, and all the other heroic arms of physic, brought into action against the disease, and with the avowed object of curing it; and when the disease is seen to abate or disappear within a short period after their employment, the inference seems inevitable that the artificial treatment was the exclusive agent in effecting the cure.

"In chronic diseases, especially those of long standing, the apparent demonstration of Art's powers is not so striking; but still, in the prevailing ignorance of there being any other agency to explain it, the result is as confidently set down to the treatment as in the other case. So general, indeed, is this belief, and the confidence in its validity so strong, that it is rarely shaken, even by the most untoward events. In the most obstinate and prolonged diseases, extending, it may be, over months or years, if the patient at length gets well, the medical treatment still receives the credit of the cure; and the physician, if he has continued to preserve the patient's confidence throughout, is sure to be lauded for his knowledge and skill, in having been able so long to make Art hold its ground against so severe and obstinate a disease, and finally triumph over it.

"When the disease proves fatal, it must needs be admitted by all, that medical treatment has failed in its main object of effecting a cure; but still it is not doubted even here that life has been prolonged and suffering mitigated, the disastrous result being set down as the consequence of a bad constitution, or of an intractable disease.

"In cases of this kind, no doubt, the attending practitioner is often also freely blamed for his want of knowledge and skill; but it is only in rare cases where the powers of his art are inculpated. It is, indeed, the belief in the acknowledged greatness of the powers of his art, that seems, in the eyes of his accusers, to imply his condemnation: he failed not for want of available power, but for want of available knowledge to apply that power.

"All this will be allowed to be intelligible in the case of the ordinary observer; if indeed it is not an inevitable consequence of the circumstances amid which he is placed, and of the degree of information of which he is possessed. That he should in consequence entertain a greatly exaggerated idea of the powers of art, and form a depreciatory estimate of the power of Nature in the cure of diseases, seems to follow as a matter of course.

"And if diseases were commonly treated on the regiminal system only, there would be little difficulty in finding a field where the natural therapeutic powers might be studied,—not, indeed, in their absolute purity, but sufficiently pure to allow of intelligible and trustworthy deductions. The case is very different, however, in the actual state of medical practice, which presents a field of observation very unlike that which mere regiminal treatment would furnish. Since the Medical Art assumed its present formal, bold, and complicated character, it is only in very rare or exceptional cases that the disease is left to Nature, or treated merely regiminally. On the contrary, the strongest and most effective powers of Art are usually employed for the very purpose of setting aside or counteracting or modifying, in some way or other, the powers of Nature. Generally speaking, we may even say that all the heroic arms of physic are invoked purposely to disturb, and obstruct, and overwhelm the normal order of the natural processes.

"In all such cases it becomes most difficult to discriminate what may be due to Art from what may be due to Nature, and, consequently, to measure the respective and relative value of the two, in the cure of diseases. In the system of ordinary medicine (that is to say, excluding homœopathy and other inert modes of treatment), which may be considered as comprehending ninety hundredths of all the cases of disease treated by physicians, the discrimination becomes especially difficult, as there can be no doubt that the agencies sanctioned by it are capable of greatly affecting the normal functions of the healthy living body, and also of powerfully modifying the new phenomena produced in it by disease.

"There can be no doubt that the grand fundamental obstacle to the attainment of a true appreciation of the powers of Art arises from the student's ignorance of the Natural History of Diseases; in other words, from his ignorance of the curative powers of Nature. This knowledge, if instilled into the mind in an early part of the student's career, would act as a perpetual and ever-ready lamp, to clear up many of the greatest obscurities of therapeutics, and enable him to eschew much of the false logic and many of the false conclusions which are inseparable from ignorance of premises essential to the investigation. Without such illumination in his early progress, to enable him to find and to know the right way and the wrong way, it is no wonder that his subsequent career should be beset by doubt and error.

"However favourably we may look on remedies, and although we may admit their validity in many cases, they can at most be regarded in relation to the case of most diseases, only as the voice, hand, whip, or spur of the rider are to the progression and course of the horse: they may stimulate or excite the natural faculties to do the work which they themselves have no power to do; they may possibly, also, regulate or direct the course of action of the natural faculties (as the rider guides his horse) so as to force them to a speedier or even to a different issue; but the essential agency in both cases is exclusively in the individual organism, not in the extraneous spur;—the muscles of the horse in the one, the curative power of nature in the other. And it is to be remembered that this natural curative power is not one that operates merely occasionally or feebly; but one that is always present, always active, and possessed of sufficient force to cure the great majority of diseases without any extraneous assistance.

"It must be obvious, therefore, that to overlook this inherent curative power, in any attempt to estimate the value of Art in curing diseases, would be to overlook, to say the least of it, a most important agent. Such an oversight would be equivalent to that of the chemist who, in his manipulations, should be either ignorant of the presence of, or make no allowance for, another reagent precisely similar to the one he was applying; or to that of the arithmetician who, while operating with it, should overlook the existence of an item in his problem, calculated to double his sum total; or, still more accurately, to that of a rower in a boat on a river, who, in estimating the cause of progress between its banks, should make no allowance for the motive force of the current, but attribute the whole of his advance to his own exertions at the oar.

"The explanations given above would almost seem impossible,—at least in the case of the medical man. And yet nothing less than this is the oversight constantly committed by all laymen, and by many medical men, in coming to the conclusions they entertain respecting the power of Art in the cure of diseases; and such is the doctrine actually or virtually inculcated in the minds of most medical students through their whole career. Can we be, therefore, surprised at their ignorance in after-life, respecting the actual powers of both Nature and Art?

"Unquestionably the most zealous advocates of the dignity of the Medical Art must admit that, if it is not altogether conjectural, many of its most important conclusions must be allowed to rest on no better foundation than the balance of probabilities; and no one who knows the difficulties that beset and obstruct the attainment of truth in all the other departments of knowledge, having a like foundation, can expect any exception to be made in favour of medicine.

"Among the numerous and manifold misconceptions respecting the natural history of diseases prevalent in the public mind, and, I may add, in the mind of professional men also, there is none greater than that which regards the termination of diseases, especially acute diseases. In the case of chronic diseases, and of slight diseases of all kinds, most persons are prepared to admit that a certain proportion of cases may end favourably—in other words, may terminate in health—when abandoned entirely to Nature. In the case of severe diseases, however, more especially acute diseases, and most of all in inflammatory and febrile diseases, the predominant opinion is that, if left to Nature, the great majority of cases would prove fatal, the recoveries witnessed being regarded as almost entirely the consequence of the interference of Art. That such should be the opinion of non-professional persons is not at all surprising, when we consider what is the ordinary source of lay notions respecting diseases and their treatment. It may seem, however, somewhat strange that, with their opportunities of judging, such an opinion should be also that of the professors of the medical art. Yet that it is so, is not only to be inferred from the extreme reluctance universally evinced to trust the event of such cases to Nature, but from the recorded opinions of practical authorities. And yet the facts of the case are entirely at variance with such a statement.

"Even in the instance of the most fatal of acute diseases, as in Asiatic cholera, plague, and yellow fever, we find a considerable proportion of the sick recover, under every variety of treatment, and alike under nominal as real treatment. The half, the third, or fourth part, of those attacked by such diseases, who recover, are, generally speaking, restored by the powers of Nature alone. In less fatal diseases, as in ordinary inflammations of the viscera or membranes, as in inflammations of the lungs, liver, pleura, peritoneum, &c., whether left entirely to Nature or treated by means incapable of controlling them in any way, we find a still larger proportion of cases terminating in recovery, more or less perfect.

"In the zymotic or poisonous eruptive fevers, as in smallpox, measles, scarlatina, &c., it is now universally admitted to be impossible to check their course; and all our most experienced and most enlightened practitioners agree that the terminations, whether favourable or unfavourable, are only very slightly modifiable by treatment; and yet we find a large proportion of such diseases always terminating in restoration or health.

"In the case of smallpox or scarlatina, for instance, we may completely assent to the proposition, that the primary phenomena of the disease are the result of a conservative reaction excited in the system by the poison for the purpose of its expulsion, although this reaction may have the effect of immediately endangering or extinguishing life, instead of expelling the offending agent; or may eventually produce in the system secondary results leading to the same event. But so, in like manner, the efforts of vomiting for the beneficial purpose of ejecting a poisonous or other offending body from the stomach may produce rupture of a vessel in the brain, or a fatal intestinal hernia; yet no question can here exist as to the conservative or curative purport of the ventricular reaction.

"In all the structural or organic diseases that are curable, the restoration of the affected part to the normal state is produced by the most ordinary and obvious operations of the healthy system, and especially by those of secretion and absorption; in other words, by the complex function of nutrition modified for the occasion. We have already stated, at some length, the exact processes by which this result is brought about in local inflammations, and to this the reader is referred. All other forms of morbid growth or morbid deposition in the tissue of organs, if removable at all, are removed by one or more of the same natural or normal processes.

"In these cases the results are unequivocal in establishing the power of Nature. A vast amount of evidence derived from this source—though, for obvious reasons, not formally recorded—exists in medical tradition and in the unwritten testimony of medical men. I could supply a good deal myself. When old Dr. Warren, in answer to the question, "What will cure acute rheumatism?" replied "Six weeks," he merely expressed what his experience had led him to know of the relative power of Nature and Art in this disease. The same kind of testimony was given, and on a wider scale, by another celebrated professor, who, on being told that a new sect (the Homœopathists) had sprung up, which cured diseases by infinitesimal doses of medicine, replied that he himself had long been in the habit of doing more than this, viz., curing diseases by none.

"Medical books of all times, and more especially the modern periodical publications just referred to, furnish us with much evidence of another and less direct kind, but which is scarcely less demonstrative of the autocracy of Nature. I refer to the reports of the treatment of the same epidemic disease by different writers, as of typhus fever, scarlatina, smallpox, cholera, &c. In many recorded examples of this sort, we find the most opposite treatment employed in the same epidemic and in the same locality, and yet the results, on the large scale, are nearly the same as to duration of the disease, mortality, convalescence, &c. As we cannot believe that agents of an entirely different nature and operation can bring about precisely similar results, we are bound to look for some common power, existing in the different cases, to account for what would be otherwise inexplicable. The only power of this kind, present and active in all the cases, is that of Nature; and to Nature, therefore, we must refer the general aspect of the events, whatever they may have been.

"The one great result obtained from the study of these various authorities is this—that the power of Nature to cure diseases is infinitely greater than is generally believed by the great body of medical practitioners and by the public generally. So great, indeed, is this power, and so universally operative, that it is a simple statement of the facts to say—that of all diseases that are curable and cured, the vast majority are cured by Nature independently of Art; and of the number of diseases that, according to our present mode of viewing things, may be fairly said to be curable by Art, the far larger proportion may be justly set down as cured by Nature and Art conjointly. The number of diseases cured entirely by Art (of course, I omit in all these statements *surgical* art) and in spite of Nature,—in other words, the number of cases that recover, and would have died had Art not interfered,—is extremely small.

"I think no candid physician of long experience will be disposed to concede more than this—namely, that though he has occasionally succeeded in relieving or even curing several of these diseases by the means mentioned, he has also very frequently failed to do so; and this, even in the instances universally allowed to be most amenable to the specific treatment. In a majority of the instances adduced, the remedies have occasionally been found useful, but have more frequently failed to display anything like a special or specific power to cure the respective diseases. In very few instances have the very best of them exhibited any such power, except in particular states of the system, in particular stages of the disease, or after the employment of other treatment of a more general and indirect kind, calculated to place the body generally or some of its parts in a more normal or healthy condition than they were previously, and thus remove obstacles to the exercise of the restorative powers naturally inherent in the system itself.

"From the survey in the last chapter, it appears that, with the exception of a very few, and those comparatively insignificant diseases, the Medical Art does not possess the power of curing diseases in a direct and positive manner. In the few diseases in which it may be said to do so, speaking generally, it not seldom fails to do so, in individual instances, so that such cases require to be transferred to other categories of therapeutic action.

"The degree to which the Medical Art can fulfil even this humble office, we have seen to be infinitely less, generally speaking, than the public and even than the members of the medical profession have always believed, and still believe."

THE SUPPOSED SUICIDE OF A MERCHANT.—The following cases will show the effect of even small doses of these poisonous drugs. How many are destroyed by the administration of them none can tell. The grave hides many such cases.

"On Saturday an adjourned inquest on the body of Mr. Joseph Bainbridge, of Hyde-park-gardens, East India proprietor, who was supposed to have committed suicide by taking prussic acid, was held by Mr. Wakley, at deceased's late residence. The inquest was adjourned for an analysis of the contents of the stomach, and the result showed that whilst there was evidence of the presence of prussic acid, the quantity was so minute that it could not be weighed, and that what was taken was much weaker than that used in accordance with the London Pharmacopœia. An assistant from Messrs. Bell's proved that he served the medicine from a prescription which was, 'hydrocyanic acid 1 oz.,' in a stoppered bottle, and say on the label, one or two minims for a dose, and mark it 'poison.' J. B..

Medical testimony was given that deceased was labouring under severe heart-disease, and was constantly bad, and was impressed with a belief that he should die suddenly. He had been brought up to the medical profession in India, and frequently took small doses of prussic acid medicinally. Mr. Freshfield, solicitor to deceased, proved that his affairs were in a most flourishing state, and that he had no cause to commit suicide.—The jury returned a verdict—'That death was caused by an overdose of prussic acid acting on a diseased heart, and that this dose was taken medicinally.'"

"Lavinia Ann Francis, aged 16 years, the daughter of a medical practitioner, died under very sudden and mysterious circumstances, from strychnia. The deceased was a daughter of Mr. William Lyndon Francis, one of the medical officers of the Stepney Union. On the night of the 5th inst., the deceased, who had been in good health and spirits, retired to rest with her younger sister. On the following morning, at seven o'clock, the deceased got up as usual with her sister. The latter repaired to the kitchen, and the deceased proceeded to the drawing-room, to perform their usual domestic duties. Shortly before eight o'clock the deceased ran down-stairs into the kitchen, and told her sister that she had cramp pains all over her. Her father and mother were called, and the deceased was placed upon a bed, where the symptoms she was labouring under became so alarming, that the parents sent for Mr. Olding, and other medical gentlemen, who adopted remedies for hysteria, but she expired in about two hours afterwards. Mr. Thomas Orton, surgeon, of White Horse-street, Stepney, said, that he was called to see the deceased on the morning of Monday, the 6th inst., about a quarter-past nine o'clock. He found her lying upon a bed, partly undressed. She was suffering from violent convulsions, and was quite sensible at intervals, when the paroxysms had subsided. She frequently called out, 'Keep me down,' and her whole body was vibrating with spasm. There was great congestion about the chest, neck, and face, and deceased had had three convulsions. The face was livid, and of a leaden hue. When witness touched her, it seemed to bring on the convulsions. Her jaws were fixed, and her eyes were ready to burst from her head. The pulse was jerking fiercely. The father of the deceased suggested bleeding, which was not admissible. Remedies were administered when the fits ceased, and there were symptoms of lock-jaw. Deceased afterwards had another fit, and then swooned away and became tranquil, and died in about a quarter of an hour. The medical attendant said, I have no doubt the deceased died from the effects of strychnia. The quantity found in the stomach was very small, but that was not a matter of moment, as it was over and above what had been absorbed into the system, so as to cause death. Strychnia is a medicine, and is used in every surgery. The 12th of a grain would be a large dose for a girl of that age. A quarter of a grain would have killed her, if administered in a single dose. The effects of the poison came on in a quarter of an hour.—Mr. Robinson, the assistant-surgeon to the Stepney Union, was next called, and said that strychnia was not sold as a poison, but was kept for medical purposes in old chronic cases. Witness asked Mr. Davis, who assisted in the dispensary at the workhouse, whether strychnia was kept in the surgery, and he said, 'Yes;' when he showed witness a small bottle, which had been kept in the cupboard of the room where the medicines were made up."

CASE of large, hard tumour in the scrotum cured in six weeks; after having tried every means of reduction by the surgeons, nature expelled it in a wonderful manner; the patient being kept in excellent health during the month he was confined to his bed. The particulars will be given to any desiring them. The patient, age 34, had a stroke of paralysis 18 months before; general health bad; had taken a deal of mercury, and the hydrocele came on; water formed, which had been frequently drawn away by puncture, until the tumour formed. First fortnight, treatment was given for the general health; No. 2 on rising, Nos. 51, 59, 62, and sometimes 63. The tumour was then attended to, and the following treatment, which soon caused a large opening in the scrotum. First morning, No.

92, eighty-six degrees; second morning, Nos. 35 and 125; third morning, the same. Every forenoon foment the part one hour and a half, then Nos. 115 and 124; afternoon, the same and No. 151, lint out of tepid water, and new lint every time changed. Often, and at same time, sponged the matter away carefully, by squeezing spongefuls of tepid water over; very important to keep the matter cleansed out often; No. 165 wetted every three hours; no flesh meat. Had no trouble with bowels all the time, and no medicine whatever; the previous treatment had put the body in excellent health.

Case P.—A young man, age 20, from repeated colds lungs rather seriously affected, night perspiration, &c. Treatment successful in November. No 26½ with hot water, forenoon 150 to chest and throat, whilst feet are in hot mustard and water. Afternoon 156. Bedtime as on rising. Twice a week 93, using soap the same time; have it in forenoon if possible. Attend to 180, 79, 207. Apply a mustard plaister to chest till red, twice a week at bedtime; then wear the compress dry till morning. Second week's treatment. On rising as before. First forenoon 74, then 150; second forenoon 23, 150; third forenoon No. 7 out of 90 degrees water, and gradually go down to 70. Afternoon 108 in 80 degrees the whole time; if feet are cold put them into hot mustard and water at same time. Once a week have 13 with 90 degrees on rising, and that morning lie still for quarter of an hour after. Third week. On rising 162, keeping warm pad on chest and stomach during the time, and put respirator on directly you awake in morning, and keep it on during treatment. Forenoon No. 7, as stated before. Afternoon 74 and 150, alternate with 108 as before. Fourth week, on rising 16, holding a large warm pad on front of body, then lie on bed, and have 150 where pad has been. Forenoon, every other day, 122, but do not go lower than 70 degrees. Afternoon, well gargle the throat with cold water, and have the outside of throat well poured over with 80 degrees, and then rubbed with dry hand. Have 35 once a week in afternoon. The alternate forenoon have 48; every afternoon have 108.

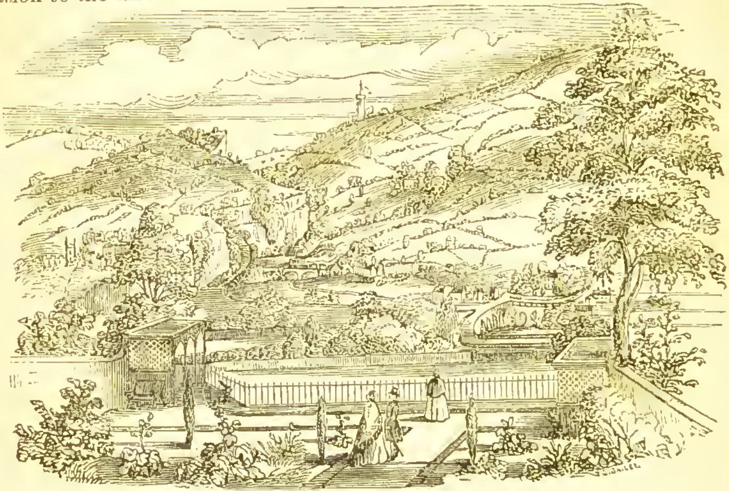
EPILEPSY.—This disease is very difficult to cure. We have had successful cases of cure. The case, page 189, will show the treatment in that instance, and the following is a general direction:—

On rising, a sitting bath fifteen minutes, and dripping sheet 65 degrees; sitting bath, 70, until it can be borne cold, comfortably. Ten o'clock, head bath in water nearly cold, 65 degrees: bathing the temples with a sponge at the same time, twenty minutes. If a female, the back hair need not be undone, as the water remaining in the hair keeps the head cool. After the head bath, use a foot bath, in water at first 65 degrees, for ten minutes. Great attention must be paid as to the quantity of food taken; a sparing diet is necessary, for whenever the stomach is at all overcharged, there is greater liability to an attack, while the person will not suffer from taking a less than ordinary quantity of food. Pastry, hot beef, ham, and every article of food not very easy of digestion, are against recovery; studies and confinement should be entirely avoided; No. 52, for five minutes, once a day, good. Half-past three, vapour bath. (See page 46.) Wear body bandage night and day for a week or two, and then leave it off for a few days; and if cold, take it off and wring it out of warm water. Ladies will understand when to leave off the treatment for a few days. I feel much confidence in these directions, if persevered in, from seeing the good results in cases. Diet is very important, and I cannot give better directions than my book. Any one liable to epileptic attacks should be very strict in diet, and make it a matter of conscience to be so. Nothing should be taken after seven, p.m. Drink about four tumblers of water per day, by little at a time, and very little over meals. Avoid all seasoned dishes and tea. Cocoa in the nibs good—coffee, and all stimulants of every kind, bad—water best. It is only by a perseverance in these plans a cure can be expected. After the first week or two, pack three times per week, and use a dripping sheet or shallow. Modify the treatment in delicate subjects.

Hooper, in his Medical Lexicon, gives the following information on this disease:—

EPILEPSY. (From the Greek; I seize upon: so called from the suddenness of its attack.) The disease vulgarly called falling sickness, from the patient, when attacked, suddenly falling to the ground. It consists of convulsions, with coma, and usually foaming at the mouth. Cullen divides the disease into three species:—1. *Epilepsia cerebralis;* attacking suddenly, without manifest cause, and not preceded by any unpleasant sensation, unless, perhaps, some giddiness or dimness of sight. 2. *Epilepsia sympathica;* without manifest cause, but preceded by a sensation of an aura ascending from some part of the body to the head. 3. *Epilepsia occasionalis;* arising from manifest irritation, and ceasing on the removal of this. It comprehends several varieties:—*E. traumatica,* arising from an injury of the head. *E. à dolore,* from pain. *E. verminosa,* from the irritation of worms. *E. à veneno,* from poisons. *E. exanthematica,* from the repulsion of cutaneous eruptions. *E. à cruditate ventricula,* from crudities of the stomach. *E. ab inanitione,* from debility. *E. uterina,* from hysterical affections. *E. ex onanismo,* from onanism, &c. This disease attacks by fits, and, after a certain duration, goes off, leaving the person most commonly in his usual state; but sometimes a considerable degree of stupor and weakness remains behind, particularly where the disease has frequent recurrences. It is oftener met with among children than grown persons, and boys seem more subject to its attacks than girls. Its returns are periodical, and its paroxysms commence more frequently in the night than in the day, being somewhat connected with sleep. It is sometimes counterfeited, in order to extort charity or excite compassion. Epilepsy is properly distinguished into idiopathic and sympathetic. It is often manifestly sympathetic, and dependent upon some other affection, such as acidities in the stomach, worms, teething, &c.; but it also appears very frequently as an idiopathic or primary disease, neither dependent on, nor proceeding from, any other. The causes which give rise to epilepsy are blows, wounds, fractures, and other injuries done to the head by external violence, together with lodgments of water in the brain, tumours, concretions, and polypi. Violent affections of the nervous system, sudden frights, fits of passion, great emotions of the mind, acute pains in any part, worms in the stomach or intestines, teething, the suppression of long-accustomed evacuations, too great emptiness or repletion, and poisons received into the body, are causes which likewise produce epilepsy. Sometimes it is hereditary, and at others it depends on a predisposition, arising from mobility of the sensorium, occasioned either by plethora or a state of debility.

When the disease arises from an hereditary disposition, or comes on after the age of puberty, or where the fits recur frequently, and are of long duration, it will be very difficult to effect a cure; but when its attacks are at an early age, and occasioned by worms, or any accidental cause, it frequently yields to judicious treatment. In some cases it has been entirely carried off by the occurrence of a fever, or by the appearance of a cutaneous eruption. It has been known to terminate in apoplexy, and, in some instances, to produce a loss of the powers of the mind, and to bring on idiotism. Morbid anatomy has hitherto thrown no light on the proximate cause of epilepsy. A vast variety of morbid appearances within the cranium and spinal canal have been recorded and insisted on by different authors as the cause of the disease. There is some organic lesion of these parts in a large proportion of cases; but since there is no uniformity in the nature of such lesion, and since, in many cases, there are no morbid appearances at all, it is fair to infer that none of those hitherto observed have any essential relation to the disorder. For treatment, see article in this work.



VIEW FROM THE MATLOCK BANK HYDROPATHIC ESTABLISHMENT.

SUPPLEMENTARY REMARKS, with a few articles which have been omitted insertion previously. I have given a short extract from the remarkable and interesting work, by Sir John Forbes, on Nature and Art in the Cure of Disease; which shows that some of the faculty, and those of high standing in the profession, are aware how much mischief is done by practitioners not acknowledging the curative power inherent in the living body;—Sir John describes it, very appropriately, as the conservative power of nature. The experience we have had in the treatment of the hundreds of cases of disease which have come under our charge, this year, corroborates those remarks—that whenever the medical adviser presumes to dictate to nature, instead of studying her laws, and gently helping her infirmities, where he can discover them, he is sure to do mischief, and often irreparable mischief. For instance, to attempt to rouse vitality by strong measures, when very little exists, is very much like poking the last spark of fire out of the dying embers in the grate; but how often this is done, is clear by the faculty's own theory. The doctor thinks the blood wants more iron to stimulate; he forthwith gives as much iron mixture in a dose as nature would supply to the frame, by natural aliment, in a month; and he repeats the dose daily, perhaps for weeks distressing and poisoning the body, until he finds out that medicine does not cure, and he then alters the mixture. The bowels do not act, either from want of blood or from want of bile or warmth; he gives as much colocynth or mercury, to supply the deficiency of the natural stimulant, in one dose as Nature would supply in weeks; the dose has sickened the organs, and they forcibly expel the offensive physic at all hazards of injuring the absorbent and mucous lining of the parts. Nature will not own the curative power of the physic. A surgeon lately came to me, to inquire into our system of Hydropathy, with a view to practising; and requested information. I began by saying that it never enters into our heads that water can cure disease; and just as I should advise a medical allopathic practitioner to cast out of his mind, when he leaves his college, that he is going to cure disease by physic, the lancet, blisters, &c., so I should advise any one studying to practise Hydropathy to leave out of their calculations that water in itself would give him a power to do so. It is the *vis medicatrix*, the medical power left in the system, be that more or less, which is to be nursed and gently helped; and it is this power which alone will cure. To attempt to evoke a power in the debilitated frame which does not exist, is simple ignorance of the nature of the frame. But so it is; doctors, allopathic, homœopathic, and hydropathic, are educated to cure disease, and restore the diseased or worn-out frame. The public superstitiously believe in their power to do so, seldom thinking or judging for themselves during the process of the attempt. The most destructive means are submitted to, until, as one of my patients told me yesterday, his medical advisers said they had exhausted all their remedies, and could do nothing more for him. He had been under several men of high standing in a large town; one had tried one scheme of medicine, another a new plan, all to force nature to do what they wished to be done; the last had dosed the patient with hydriodas potassæ, but nature would not own its curative powers, and only was more distressed with its presence. When practitioners of all systems of cure will come down from their scientific chair and own nature's power of cure, carefully watch and study her operations, and see how she guards against mischief, and repairs diseased parts, they will succeed in making friendship with her, and she will teach them many secrets not acknowledged in the London Pharmacopeia. But this is a hard and humble pill to take, and few but old practitioners, such as Sir John Forbes, who has now done with practice, have courage to brave public opinion, and honestly own they have no curative power in their possession, and can only be humble servants to this conservative power of nature. The simple want of heat is one great cause of suffering and ill-health in thousands; and this can often be remedied simply by thicker clothing and more care in not exposing the body to cold when feeble. So simple a remedy is, however, so little esteemed, that the doctor who told his patient he only wanted a thicker coat and a flannel waistcoat, and not his purgatives, would have little chance of getting a living by his practice. Sir John Forbes truly says, the public force practitioners into a line of practice against their better judgment.

I have had cases of invalids who have never known what good health is in the autumn, winter, and spring; they have had no disease upon them, and so their doctors have told them; but they have never been well, except in summer. Here was cause and effect plain enough; the doctor knew it as well or better than we did, but he dare not tell them that if they would clothe more in accordance with the change of the seasons, and would be more careful in their diet, especially at times of the year the functions of the body, in this uncertain climate, are less able to perform their work. If he did so, they would indeed think they had paid for advice very foolishly. No, they must have something to take that will save them the trouble and expense of clothing, or the necessary self-denial in habits of life. It is now the first of November. Patients are coming almost daily, broken down in health; some in the last stage of disease, clad precisely as in summer; eating as much as they can, under the idea of supporting life, when at the same time the stomach wants entire rest, if it was possible to afford it; but as that cannot be done, requires the least possible amount of work, until it has regained its abused power,—abused by over-eating, or by physic, stimulants, tobacco, cold, or hardships.

The medical art, in all ages up to the present time, is looked upon by mankind as requiring a great amount of learning to understand, and powers little or not at all short of the wizards of old. Men like Sir John Forbes deserve the thanks of their species for endeavouring to expel this delusion, so far as regards ordinary cases of derangement of health, and pointing out the wisdom of people studying their frames and the simple laws of nature. I have had numbers of cases of functionary disorder cured in two or three weeks, and sometimes in less time, simply by teaching the patients how to wash their bodies, to clothe properly, and to live on simple natural diet. Some of these cases have been quoted as marvellous cures, beating the doctors out and out, when, in fact, there has been no science employed or called for; and their doctor would have done the same for them, if they would have submitted to his advice, in a similar way. People should remember, life is heat, and without heat the body dies. With lowered amount of heat, the engine will not work; the wheels will not turn but by force, and the engine often breaks in the continued attempt. Where heat cannot be got by exercise and by strong blood-making powers, then try other and simple means; but do not attempt to work the engine of the body without heat,—it cannot be done. One word more: do not try to get heat by alcohol—that is impossible; the momentary heat gained is soon lost, and the natural heat doubly lowered. The skin must be kept in good condition by ablutions; and perhaps as important, or the most important point of all, with the majority in the middle and higher ranks of life, the quantity of food taken must be proportioned to the amount of waste caused by bodily exertion, always risking taking too little than too much.

Additional Note on Crisis.—When the crisis is well come out, and is hot, have the bandages *without oil-silk or mackintosh,* as the evaporation will go on better; calico wrung out of tepid, and dry calico and flannel over. Sponge any matter off with warm soap and water. Crisis should be kept from the air as much as possible, and the covering next the skin not dry. When it is dry, it should be wetted before removing, as the dry bandage sticking to the part will disturb the formation of new skin, if taken off in that state.

Mackintosh or Oil-silk Sciatica Leg-case.—Sometimes there will not be vitality enough in the frame to keep the sciatica leg-case warm, as mentioned in p. 148; in these cases we use the jaconet, or common mackintosh, or oil-silk outer cover, and line it with flannel, damping the flannel, and binding a narrow flannel bandage over all, to keep it tight to the leg. If the damped flannel still does not keep warm, wear it dry, and often use hand rubbing to the leg and hip, at the same time having the sole of the foot in hot mustard and water, and occasionally rubbing all the parts with hot mustard and water. I wish all those afflicted to bear in mind, the cause is in the stomach; and abstinence from stimulants, tobacco, and very little or no flesh meat, necessary to recovery.

Case of Sciatica Rheumatism in the Hip and Leg.—A patient, who has been under treatment for some time for sciatica, and has had crisis, but who could not stay long enough to have a cure effected, has requested advice for home treatment; and I have given him the following. His age is 65; tall and stout; has been a good deal exposed to the weather; and has had indigestion for many years, shown by his white tongue and uneasiness of the stomach.

Sciatica Case.—Gentleman, aged 65 in November. Home treatment. The following is not exactly what is best, but as much as will be convenient probably at home:—Two or three mornings per week, on rising, have tepid dripping sheet; other mornings have soap over, and hot water sponging and dripping sheet nearly cold, or sponging nearly cold. Do all this as quick as you can; and if severe weather, have a fire in the bedroom raked over night, and relighted before rising, to dress by. Spirit lamp, once per week, any time of day; or at bed-time, with cold sponging after. Steam bath twice per week, with the same. No. 98 will do as a substitute occasionally. Every day have sitz bath, 85 degrees, feet in hot, or hot pad well covered up; and same time rub spine, and also rub stomach with hand and cold water; and rub hip and leg with dry mustard after. When you can, have foot of the affected leg in hot mustard and water to ankle; and have the leg and hip rubbed for five minutes with the same; the bath-man using both hands. Then dry, and put on the sciatica leg-case, made of mackintosh, lined with flannel. Have the flannel part dry in the daytime, and sprinkled with tepid water to sleep in. Little or no flesh meat, no stimulants, and nothing not easy of digestion; and not to take a full quantity of food at dinner, as when in health. Wear wet body bandage every day, wetted only over bowels, and dry flannel wrapper only at night. Avoid much walking, until pain is gone; arms and chest may be exercised sitting, without interfering with the hip. The complaint arises from indigestion, often of long standing; and time and patient perseverance in these plans, I believe, alone will eradicate the disease. It is not, of course, so soon cured in advanced life as in younger persons; but we have not failed with any case where a fair trial has been given. Good thick coat, vest, and trowsers necessary; and do not put on thinner clothes some days than others. Ripe or stewed pears suitable; no apples uncooked, and few cooked; no nuts, walnuts, or dried fruit; nor cakes, or plum pudding, or pastry. Breakfast on Scotch oatmeal porridge, egg, and brown bread and butter, and milk, and a little cold boiled bacon. Better without tea, except in the afternoon may take a little weak black. No supper, nor anything after six or seven in the evening.

Braces and Garters.—These appendages of dress are far more injurious than is generally known. Braces tend to cause the wearers to stoop, and so contract the chest A pair of cloth straps, set on seven inches apart, and placed just on the top of the hips, will keep the trowsers in a comfortable position far better than braces; and have a further advantage over braces in supporting the muscles of the hips and back, leaving the body free and more inclined to throw the trunk back. If the straps are placed higher than the point of the hip, they will feel tight and uncomfortable round the waist, or if placed more than seven inches apart; the straps should be two inches broad where they are set on, and brought to one and a quarter at the ends, with a one and a half wide buckle. The ordinary fashionable plan of having no waistbands to trowsers, and buttoning up the front, with the waistcoat only just to come to meet the trowsers, and the waistcoat only to button a short way up, is a very absurd mode of dress for this country, except during the warmth of summer. Such fashions leave the viscera unprotected in cold weather, and is the fruitful cause of chest, stomach, and liver complaints. Unless the vital warmth is kept up in the nutritive organs, it is impossible they can act properly; the neglect of such simple and obviously necessary precautions keeps thousands in a chronic state of ill health. On the vitality of the plexus of organic nerves in connexion with the stomach, depends the power of digestion. Dyspeptic persons will often feel a coldness there externally, even when warm in other parts of the body; and when this is the case, it is utterly impossible good digestion can go on. Our No. 76 or 77 is here useful to invalids; and great benefit will be felt by using No. 77 in bed. Trowsers should be made what is commonly called with fall-down, which gives a good broad waistband; and they should never be made tight: I have mentioned this before. Disease often results from trowsers made to fit tight in the fork. Garters prevent the return of the venous blood from the feet and legs; and are a cause of varicose veins in some, and always and inevitably injurious in all. A patient, to whom I was naming this lately, said he had had a hard tumour caused by the garter, which Sir B. Brodie had excised. Garters tend to cause cold feet. The same remarks as to protecting the bowels and trunk generally, of course, is applicable to ladies, who often suffer from the absurdities of fashion. Neither milliners nor tailors study the physiological wants of the body, nor would they be allowed to act on their convictions in such matters; they must dress the majority of their customers light and airy, without regard to the climate or season.

TOBACCO, AND FEVER AND INFLAMMATION.—We have had some striking instances of the injurious effects of tobacco in rendering persons liable to disease. Some cases of scarlet fever have occurred in the locality of Lea and Bonsall recently. The tobacco-smokers have had the greatest difficulty in getting over the attack; their lowered vitality has told upon them, and the mucous inflammatory action which is always more or less present in smokers, as seen by the swollen and unclean state of the tongue, has determined such an amount of inflammation to the throat, that their lives have been saved only by the most constant and unremitting attention to fomenting and packing. Cases, which have been free from tobacco, have got through the fever with very little trouble, and have been quite well in three weeks. Tobacco-smokers are little aware, at the time they are using the narcotic, how they are paying for the gratification, by accumulating the seeds of disease and death in their frame. While I am writing this, a case of fever, and one of inflammation of the bowels, have sent to us for help; in both cases the chances of recovery are slight, from being smokers. We always undertake cases of tobacco-smokers with reluctance and doubt as to recovery, whether in fever, inflammation, or rheumatism. A patient arrived at my establishment yesterday; full-formed man; age, 30. He began to describe his pains; stomach affection, and general uneasy state. I said at once, "You smoke tobacco." He was surprised I could predict his state from that cause; but so it is. Tobacco gives young men the infirmities of age; and the old, the miseries of a constant craving to keep down the miserable feelings which have been created by the drug. A little reflection, by any Christian person, must show them the heinous sin in thus destroying or disabling the body from properly fulfilling the duties of life, for sensual gratification. Some ruin their health also with snuff, and some with alcohol: all such courses are an offence against God's laws.

CONSUMPTION OF THE LUNGS, or any disease of the chest.—In addition to the preceding statements on these subjects, we have found packing the arms, No. 214 on the bath list, very beneficial in drawing out crisis on the arms, and so drawing inflammatory action from the lungs. This is in addition to a chest compress, No. 179, or 184¼, or 180, and spinal compress. In winter we are now applying with good effect a jacket made to lap over well in front, made of oil-silk, or mackintosh jaconet, lined with flannel; the flannel sprinkled with tepid water, or what is better, sponged over, but not very wet; sleeves to wrist, and also lined with flannel. This worn night and day; and have a second to change, that one may be hung out in the air, allowing effluvia to be removed. The great point we aim at is to get a rash or pimples on the surface of the chest and arms; and when we do so, the benefit is always certain. Great care should be taken, in these cases, not to rise before a fire has been made in the bedroom in autumn, winter, and spring; and not go out till after breakfast; and if the weather is at all cold, it is very beneficial to sleep in one of Maw's respirators.

CHEST PACK.—This is very effective in sudden or obstinate attacks of the chest. Take a flannel pad, four thicknesses, full size of chest and to bowels; wring it out of hot water, lay it on chest, with two thicknesses of dry flannel over, and then full-size silk and flannel chest compress, dry; and put a flannel wrapper round the body, over all, and let it remain on all night; and in morning, tepid wash, and put on silk and flannel chest compress, the flannel part sprinkled with tepid water. If no chest compress at hand to put on at bedtime over the other, put so much more dry flannel; or a cloth waistcoat, buttoned over all, is used with good effect.

We daily see the uselessness or mischief of administering physic, in attempting the cure of disease. A patient, now in the establishment; age, 45; fine constitution and well-developed frame; very actively employed in business from the age of 20; overworked body and mind. After a time, this course told first on his stomach, then on the whole frame. As usual, he applied to one of the first surgeons in the town, expecting the doctor could give him some physic which would enable him to go on living against nature's laws. The surgeon did not tell him the cause of his disease, nor warn him of the danger to life in persisting in working as he did; but whenever the liver would not act, and bile accumulated in the stomach, gave him an emetic, as the simplest and easiest way of emptying the stomach. The patient supposed this plan was the legitimate course; he submitted to it for a considerable period. The night after the emetic, a little blue pill further helped to clear out the channels. This practice, however, was diametrically opposed to nature's mode of cure, and brought on intense suffering from the outraged nerves of the stomach, reflected on the brain; and for the last fourteen years the patient has had daily suffering, and all but laid aside. He is now progressing well towards recovery; his age is not too far advanced for a cure to be effected. Time, and perseverance in our natural system, will make him a sound man again. The following case I have just received, asking for advice; and it is very striking how all the efforts of the drug-doctors failed in giving even relief; but when the patient, fortunately for him, fell in with a work on hydropathy, the mere washing he could do himself did more than all his previous advisers; and now if he comes to the Establishment, and has a regular course of treatment, I can ensure his entire recovery

Case of Cutaneous Irritation and Disease.—A minister, about 40 years of age, of middle stature, dark complexion, not stout, but muscular, a robust, good constitution, not having been confined one whole day to bed the last thirty years, scarcely ever knowing what it is to have a headache or any symptom of indigestion, or any complaint, except occasionally a slight cold; of regular habits; a strict teetotaller for more than twenty years; never smokes, snuffs, or chews; of moderate but good appetite, living on a sufficiency of plain wholesome food; seldom suffering from cold or changes of temperature; circulation of blood always good; voice powerful, and seldom affected; not constipated, on the contrary, though with a little tendency to constipation; of cheerful, uniform spirits; married about three years since; has one child, and, being without any symptoms of constitutional malady, was about two years and a half ago seized with an irritation of the skin, the nature and progress of which he will describe. He must premise that, as a general thing, he has *never* perspired very freely, except under the pressure of great exertion, or heat, or excitement; this was seldom. From 1847 to 1855 he was accustomed to a cold sponge bath every morning through the year, and used to take then and before a good deal of open air exercise. In spring, 1855, he removed from a distance of thirty miles N.E. to his present residence. For a year, till May, 1856, he neglected the regular cold bathing, and his exercise was *less*. During the summer of 1856 he first suffered from the irritation; it chiefly affected the trunk (back and front and sides), the thighs, shoulders, and arms; never the face and hands, and not at all under the joints. He had never sufferod from any skin disease before, except twenty years ago for a few months from boils, the effects of a chill. The appearance now was, risings in the skin, not pimply or mattery (this form has never been seen), risings as a rash, or as from stings of insects, a deeper colour than the skin, sometimes in irregular patches, larger or smaller, sometimes semicircular or almost ring-like in form, sometimes like weals. He consulted *first* a doctor, allopathic, who attended his wife occasionally. This doctor prescribed a few pills and a little lotion of henbane, &c. This gave no permanent relief to the patient, who then went to Blackpool a fortnight, and bathed. This also was useless. A few steam baths were also taken at some baths in Manchester; still the symptoms remained. He then consulted, in September 1856, one of the chief allopathic physicians in Manchester, perhaps the chief, who examined him, pronounced his health perfect; thought the complaint was a little local and temporary derangement; prescribed two or three little simple matters, an electuary, acids, &c., to be taken internally, to act on the skin; advised regular vigorous open-air exercise every day, and three weeks at Harrogate. Getting no better under the treatment, he went to Harrogate, and spent most of October, 1856, drinking the sulphur water every morning, and bathing in the sulphur baths thrice a week; this afforded a little relief, and a partial removal of the risings and the irritation. He returned, showed himself to the physician, who said it was looking better, but told him to come again in a week; during that week it became worse than ever; the physician said this was the case, and advised three vapour baths a week, combined with sulphur, as the sulphur treatment had failed. The minister had, in his way home from Harrowgate, met with "Johnson on Hydropathy;" he consulted this, and found cases he deemed somewhat similar—psoriasis, eczema, and other skin complaints—had been cured, when every other appliance failed, by washing well all over thrice a day in hot water, with yellow soap, before a good fire. Now it struck him that his complaint was suppressed perspiration; he therefore resolved to try this fairly and fully; he did so at home, nearly all November, 1856; in a week, the arms, that were not much affected, became perfectly free, good nights' rest enjoyed; and in a month he was, for the time, so far as he knew, perfectly well. In March, 1857, there was a slight return, but a few hot washings seemed to check it. He now carried on the morning cold water sponging. The summer of 1857 he was free. In the autumn he neglected the cold water bathing a little; about the end of October, and during November, there were returns; he commenced again the warm soap washings, and took six Turkish baths in three weeks; under these he perspired profusely, but they did not fully remove the irritation; he also continued with them evening hot washings; by December he was again free, and continued so till last March, when there was a slight return for a few weeks, and the hot water was again applied. During all this last summer he was quite free; he perspired moderately occasionally, took a good deal of exercise, and the cold baths; but about the middle of last month the irritation commenced again, and continues. He has washed with hot water and soap recently twice a day, and now thrice; this allays the irritation, develops the risings, and after a time removes them. The back was principally affected since the first attack; now it is almost as extended as the first; warmth seems to increase the itching, as if it were moving the matter that should be expelled. Sometimes the feeling is all over the person like slight nettle stings. There has never been anything of the watery, mattery, pimply eruption. His skin seems to be close, compact, thick, and heals easily and quickly.—(*Patient's own statement,* see page 312.)

ENLARGEMENT OF THE UVULA, or relaxed throat, generally occurs from over-exertion, in ministers and others engaged in much speaking. Sometimes the enlargement is to such an extent that a surgical operation is necessary. In other cases, the distension of the parts may be cured by abstaining from much exertion of the parts. The application of general treatment, as the Home Treatment article in this; and for the throat especially, use No. 81 frequently, and every night 79, and rub the throat with hand and cold water on rising, and once or twice during the day, when the action from the mustard will allow. Abstain from all stimulants, and take little flesh meat.

AFTER HOT BATHS OF ANY KIND, PERSONS SHOULD REST on sofa, and not take exercise, and always have cold or tepid applications after hot bath; and if the cold sitz bath is used after, for five minutes, it will aid the good effect of the bath. Delicate cases can use tepid, sitz, or cold water; smaller quantity of water, in cold, is best. A hot flannel pad to the chest, whilst in the steam-bath, aids the action, and should be renewed in hot water.

HALF OR WHOLE CHEST-COMPRESSES, without collar, are very useful, applied to the top of the back, and tied round the neck; at the same time, a compress is applied to the chest in the usual way. In chest or lungs complaints this is beneficial, from the apex of the lungs being more easily reached at the top of the back. For rheumatism of the shoulders, or pain from liver-affections, it is soothing applied on the back only. All consumptive or delicate persons should wear a SHORT FLANNEL OR HOSIERY JACKET TO SLEEP IN, with collar and short sleeves; but never to sleep in the usual flannel vest they wear in daytime. We make sleeping-jackets of merino, which answer well.

HOSIERY UNDER-CLOTHING is absolutely necessary in every case of patients under treatment for restoration to health. We find many very deficient in this point, on arriving at the establishment in autumn, winter, and spring; and before we can expect any good effects from the baths, we require attention to this point The most sensitive may wear the hosiery merino under-clothing, if it is made of wool fine enough; and it may be made light and warm too, by using the finest German or Australian wools, with only cotton enough in to prevent shrinking. Common merino is nearly all cotton, and gives little warmth. The best merino is not even warm enough for many invalids; and then the Leicester or Scotch lambs' wool garments are the best. Ladies with delicate chests will do well to wear the merino vests, with high necks and long sleeves. The super quality is mostly used, and many of our delicate invalids have found immediate benefit from their use. The union dresses also, either for day or night, are a great comfort to the invalid who has not before tried them. The union dress is vest and drawers in one garment, and are made for adults, and also for children of all ages. Our fine and stout merino goods can be had in any London shop, or of the principal wholesale hosiery warehouses in London only. The wool is of the finest quality; and the summer garments in India gauzes, &c., are calculated for wear in hot weather, to absorb perspiration, and keep the body dry.

Case No. 1, of disease of the lungs.—Gentleman, age 30. Treatment prescribed in November to be varied according to circumstances. On rising, Nos. 65 and 26½. Forenoon, No. 72 five minutes; same time, have feet and hands in hot mustard and water: do all this with as little undressing as possible. Afternoon, No. 114; expose the body to the air as little as possible; No. 177 and single 172 and 186.

Case No. 2, lungs affected, age 45.—Chronic patient, rather rallying, but still doubtful of recovery. In November, on rising, No. 26; but if chilly, take it tepid. Forenoon, No. 7, drop the pad directly the sheet is on; and when dressed take No. 154, not quite cold. Afternoon, No. 120. Bedtime, No. 72; mustard on soles of feet.

Case No. 3.—Gentleman, age 55, slight frame, rather worn; general debility and sciatica in November. On rising, No. 24. Forenoon, first day, Nos. 64 and 24; second forenoon, No. 121; third, No. 52, slight. Afternoon, feet in hot mustard and water; rub affected leg and hip with the hand and the mustard and water four minutes gently; and at bed-time No. 99 every other night.

Case No. 4, bronchial attack from stomach irritation, owing to stimulants.—A gentleman, age 30. First week, treatment, as follows, in May:—On rising, hot and cold sheet; mustard leg bath, 100 degrees, a quarter of an hour. Forenoon, steam bath eight minutes, and cold shallow. Afternoon, sitz 100 degrees two minutes; run down cold five minutes, and spinal rubbing. Night, hot mustard leg bath, 100 degrees, fifteen minutes.

Case No. 5, varicose veins.—A lady, age 50. On rising, No. 96. Forenoon, No. 46; alternate days, Nos. 6 and 138. Afternoon, mustard poultices, where veins are large on the legs, and No. 143. Bedtime, sitz 80 degrees five minutes; alternate nights, No. 159, also 214.

Case No. 6.—A gentleman, age 40, rather spare; out-door occupation Liver, and especially stomach, deranged; a good deal of stomach irritation. November, on rising, first day, Nos. 1 and 73 for three minutes, covering person well with blanket, and stand on hot pad; second day, ditto; third day, ditto. Forenoon, first day, 11 o'clock, No. 90 with small half-pad to stomach, afterwards No. 73 tepid, feet in hot mustard all the time; second day, No. 44; third day, as first. Afternoon, No. 157. No. 166 in night, very well wrung out. No. 163 in day, wetted only in front. Only sip water by table-spoonfuls at once. Diet No. 211.

Case No. 7.—A gentleman, age 28; good deal emaciated; consumption. On rising, first day, Nos. 10, 72, covered up well; second day, Nos. 13, 10, and 72, ditto; third, as first. Forenoon, first day, No. 68; second day, No. 64; third day, No. 68. Afternoon, No. 107, feet in hot mustard; No. 214 to arms, Nos. 198, 196, 207, 208, 168, 178, 207.

FIGS are very wholesome, as follows:—Get the extra Elema figs; put a few in basin or jar; pour boiling water over them; stand three or four minutes; drain water off; sprinkle little crushed lump sugar over.

APRICOTS AND PEACHES, dried. Take a handful, wash them in two waters to take away sand and straw; put them in a saucepan; just cover them with water; stew an hour. No sugar. The water will have become good syrup.

PLUMS, best picked French. Stew in a jar until soft; very excellent for invalids.

GINGER, preserved Chinese, put through sausage machine, softens and mellows it. Very good, instead of butter, for some invalids.

THE CAUSE OF SUDDEN ATTACKS of fever, inflammation, dropsy, apoplexy, paralysis, and other diseases, is owing to a simple principle. From improper diet, stimulants, tobacco, over-fatigue, or anything which causes indigestion, the mucous membrane lining the alimentary canals becomes inflamed and in a diseased state. All food taken while the organs are thus incapable of performing their natural offices does not afford proper nourishment to the body, but supplies an imperfectly prepared material to supply the waste always going on, and which the nutritive powers of the body will supply with unhealthy material, when good cannot be had; otherwise, if the organs could not supply any material except when in a perfectly healthy state, life would soon be brought to an end on every fit of indigestion. The Creator, however, has endowed the body with a conservative power and great powers of endurance, before it succumbs either to unhealthy aliment or the vicissitudes of climate or mental pressure; but there is a limit to this power of endurance, and in some more than in others. Here again, however, we see the beneficent care and the justice of God; for it is notorious that those who have been brought into the world with slight or delicate frames often live out many stronger persons. The explanation is this:—the delicate sooner feel the effects of inflammatory action in the mucous membranes; they are sooner brought to a stand; they are reminded of danger sooner, and take measures of precaution, by taking rest, stopping the supplies, or moderating them, until the organs have had time to recover; they cannot bear the deranged state which stronger persons can. Thus it follows that the stronger frames can bear up longer, and often *appear* in fair health, when in fact it would be seen by the state of the fauces and the tongue, the lips and the eyelids, that there is that amount of inflammatory action in the mucous membrane linings, that only requires the exciting cause of some excess, either in over-fatigue or diet, to concentrate the storm on the weakest part of the frame; and even then, such is the conservative power inherent in the frame, that the disease is thrown off by fever, inflammation, dropsy, &c.; but, from the unnatural, cruel treatment in physicking, blistering, setoning, and the many ways of attempting to drive out the disease, the body is left a wreck. The contrast in the treatment of the body by these means, and the gentle hydropathic plans, will soon commend Hydropathy to all thinking, unprejudiced persons. Mucous inflammatory action precipitates disease on vital organs, when they have been weakened by its continuance, and no longer able to resist the sympathy with the diseased parts.

CHOKING.—"On Monday last, Mr. J. Parry Cole, a professor of music, at Arundel, was playing with a fourpenny-piece, by jerking it out of his hand into his mouth, when by some accident it was drawn into the windpipe. He endeavoured by various means to remove the coin, but unsuccessfully. Immediately he sought a neighbouring surgeon, who administered an emetic, but this failed, and Mr. Cole was appalled by being told 'that nothing more could be done,' and it was probable that mortification would ensue. So alarmed was he that he wrote to his friends to tell them of the unhappy accident and its anticipated results. The fourpenny-piece had become wedged in edgeways, and breathing was not interrupted, further than that it produced a kind of wheezing noise, similar to that in an asthmatical person. After trying every means to move the impediment during the night, Mr. Cole hastened to Chichester the next morning, where he was called professionally; but being unable, from pain and natural anxiety, to attend to his duties, he called at the surgery of Mr. C. S. Jones, who, by auscultation, could easily detect the coin lying at the bottom of the windpipe. The same sad tale was told him as before, and that mortification would probably set in in two days. The only chance was to have some chloroform administered, and endeavour to remove it by an external operation. This was, indeed, sad news for a young gentleman in the prime of life. But previous to his leaving Arundel, a lady had reminded Mr. Cole of a similar accident occurring to Mr. Brunel, the engineer, who had the misfortune to get a half-sovereign in his windpipe, in playing with his children. The way in which that was removed was in placing the gentleman on his head, and giving a violent blow at his back. Mr. Cole mentioned this circumstance to Jones and his assistant, but both were somewhat doubtful of such an experiment. However, Mr. Cole insisted that this singular plan of removing the imprisoned coin should be tried. A cushion was placed on the floor, his legs were raised into the air, and a violent blow was given on the back; immediately Mr. Cole shouted 'Here it is!' And true enough the fourpenny-piece had fallen from his mouth upon the floor. To describe the feelings of the patient at this moment would be impossible. The medical gentlemen were equally delighted at the result of this operation; the cushion on which Mr. Cole had placed his head was seized and thrown up into the air, and three hearty and joyful cheers were instinctively given at such a happy termination of what had threatened to be a most melancholy misfortune."

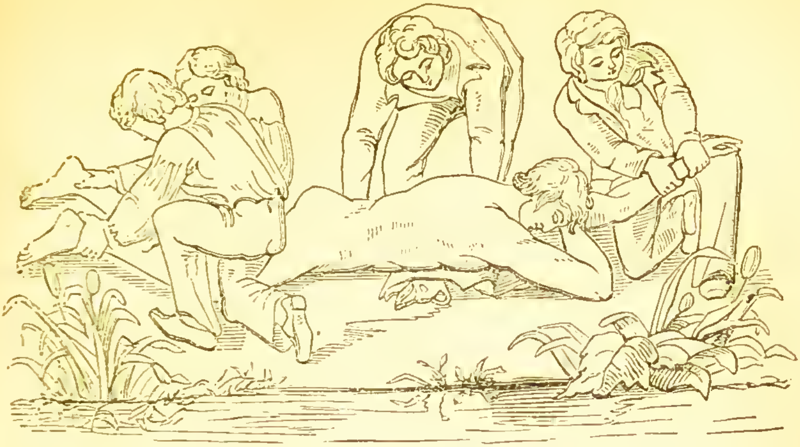
SWALLOWING A BULLET.—"A Highland shepherd, whilst mumbling a small bullet between his teeth, unfortunately let it escape from them, and slip into the windpipe. He coughed incessantly for two hours, after which he had slight inconvenience beyond a little occasional dry cough, till the middle of the following day, when he was attacked with shivering, headache, and deep pain in the right side of the chest. The shivering and headache ceased, but the pain continued, and he was excessively drowsy. On the evening of the third day he was seen by Dr. Macrae, who, being satisfied of the lodgment of the bullet, 'directed the man to be strapped securely to a common chair, that he might be easily suspended from the rafters of the roof with head downwards, in order that his chest might be conveniently shaken by a rapid succession of sudden smart jerks, and that the weight of the bullet might favour its escape from its seat in the lungs.' He was kept depending as long as he could endure such an uncomfortable position, and then placed in the horizontal posture for a few minutes to rest. When sufficiently recruited, he was hung up again. Upon being taken down the first time, he described the pain in his breast as moved nearer to the top of his chest, and during the third suspension he joyfully exclaimed, 'Thanig-á, thanig-á!' ('It has come, it has come!' in the Gaelic language), immediately, after a smart shaking and a few convulsive retching coughs, and spat the little bullet from his mouth."—*Household Surgery; or, Hints on Emergencies.*

CRAMP IN THE STOMACH OR BOWELS will be relieved by No. 67 for one hour, or 44½ and after the application, sponge or wipe the trunk only with a sponge or towel wrung out of tepid water; then put on flannel and body bandage, the flannel part very well wrung out of hot water, and have another dry flannel wrapper over that; keep on all night, and by morning the person will be well. On rising, take the usual morning treatment.

Palsy being paralysis, only in a different form, we treat in a similar manner:—steam-baths, bandages, packing; also bandaging the limbs as No. 214. Spinal applications good, as Nos. 121, 112, 114; also 156. Dr. Hooper says of palsy:—

> "When palsy attacks any vital part, such as the brain, heart, or lungs, it soon terminates fatally. When it arises as a consequence of apoplexy, it generally proves very difficult to cure. Paralytic affections of the lower extremities, ensuing from any injury done to the spinal marrow, by blows and other accidents, usually prove incurable. Palsy, although a dangerous disease in every instance, particularly at an advanced period of life, is sometimes removed by the occurrence of a diarrhœa or fever.
>
> "The morbid appearances to be observed on dissections in palsy are various lesions of the brain and spinal cord, more frequently the former. Where hemiplegia is a consequence of apoplexy, sanguineous effusion is generally found to have taken place in the brain on the side opposite to that which is paralysed."

APPLICATION OF HYDROPATHY TO CATTLE, &c.—Hydropathy is quite as successfully applied to animals as to the human frame; and when the prejudices in favour of physic, bleeding, and blistering are removed, it will be extensively practised. I have used it with entire success for the last five years in various cases with my horses, cows, and pigs, when the usual modes have proved unavailing. One instance has just occurred. Mr. Bown, farmer, of Birchwood, near Alfreton, a friend of ours, sent his man over to me, saying he had a cow down of the milk-fever. I sent my man over immediately; he found the animal breathing with great difficulty. First, a blanket was dipped in hot water, wrung out, and wrapped round the animal's body, and especially round the elder; then mackintosh sheet over to keep in the heat,—(this should be done quickly), if no mackintosh sheet, bed-rugs would do, so that enough are put on to keep the heat in. This was kept on one hour without removing. Re-dipped the blanket in hot water, and so kept on fomenting for two hours, then washed over with cold water, and well rubbed dry. Then gave a wet pack with sheet wrung out of cold water wrapped round the body, then dry rugs or sacks, and the man to place a bed on the whole as the animal lay down. In pack one hour and a half, then washed her down with cold water, and rubbed her dry. The cow gave six quarts of milk, and was quite relieved. Let the cow rest, and fomented again at night, and again next morning, when she was taken out in the field for exercise, and brought back into the barn. During the whole time put dry rugs over the body when not fomenting, and in a warm place with plenty of straw. The cow was quite well the third day. Similar fomentation to pigs has often saved them when given up. The Turkish sweating-bath is used in Ireland with great success. I intend erecting one for animals. It is strange that there are at present no means of sweating diseased animals but by medicine in England.



THE READY METHOD IN SUSPENDED RESPIRATION IN DROWNING, &c.—BY DR. MARSHALL HALL.

1. Treat the patiently *instantly, on the spot, in the open air, exposing* the face and chest to the *breeze* (except in severe weather.)

I. To Clear the Throat—

2. Place the patient gently on the face, with one *wrist* under the forehead; [*all fluids and the tongue then fall forwards, leaving the entrance to the windpipe* FREE.]

If there be breathing—wait and *watch;* if not, or if it *fail*,—

II.—To Excite Respiration—

3. Turn the patient well and *instantly* on his side, and—

4. Excite the nostrils, the throat, &c., and dash cold water on the face, previously rubbed warm.

If there be no success, *lose not a moment*, but *instantly*,—

III.—To Imitate Respiration—

5. Replace the patient on his face, *raising* and supporting the chest *well* on a folded coat or other article of dress;

6. Turn the body very *gently on the side and a little beyond*, and then *briskly* on the face, alternately; repeating these measures deliberately, efficiently, perseveringly, *fifteen* times in the minute, occasionally *varying* the *side;* [*when the patient reposes on the chest, this cavity is compressed by the weight of the body, and expiration takes place; when he is turned on the side, this pressure is removed, and inspiration occurs.*]

7. When the *prone* position is resumed, *make* equable but efficient *pressure*, with brisk movement, *along* the back of the *chest; removing* it immediately before rotation on the side;

[*the first measure augments the expiration, the second commences inspiration.*]

⁂ THE RESULT IS—RESPIRATION;—AND, IF NOT TOO LATE—LIFE!

IV.—To induce Circulation and Warmth—

8. Meantime rub the limbs *upwards*, with *firm grasping pressure* and with *energy*, using handkerchiefs, &c.

[*by this measure the blood is propelled along the veins towards the heart.*]

9. Let the limbs be thus warmed and dried, and then clothed, each bystander supplying a coat, a waistcoat, &c.

10. *Avoid the continuous warm-bath, and the position on or inclined to the back.*

DR. MILLER ON THE ORDINARY FUNCTIONS OF THE HUMAN BODY IN HEALTH.*—"Every function of the living man—whether thinking by help of his brain, for example, or working by means of his muscles, or secreting through the agency of his glands, produces a corresponding disintegration of the appropriate structure; a certain amount of nervous, muscular, or secreting tissue crumbles down, and, for the time being, is rendered useless to the living economy; and, besides, its presence any longer—at least in that condition—would prove hurtful. A twofold action is required: first, to supply renewal for the waste; and second, to have the wasted material suitably removed. The latter object is accomplished by the blood, which, by the help of veins and absorbents, receives the used-up stuff into its backward or venous current, for the purpose of consuming part by the action of oxygen in the lungs, and disposing of what remains by means of the organs of excretion—the liver, bowels, skin, and kidneys. The renewing supply of the waste, from tear and wear, on the other hand, is performed by the arterial blood, in its onward current throughout the frame. Filtering through very minute and numerous vessels, called capillaries, it allows that portion of it which is needful to compensate for the ever-recurring loss to escape, and come in contact with and be applied to the parts which need it. The waste is constant—greater according to the amount of exertion made, but always more or less; and the supply must not only be constant too, and proportional in amount, but also of a *certain quality.* Send venous (*exhausted*) blood to muscle, and you mar both its structure and its working. Do the like by the brain, and the result is similar; you disorder its function invariably, and may easily enough silence it for ever. To nourish, blood must be arterial (*having received oxygen through the lungs*). Having nourished, it becomes venous (*exhausted*)—not only useless but noxious to the organs that need nourishment, and fit only to be sent back through the liver and lungs, there to undergo such changes of giving and taking as shall once more qualify it for its work of supply. In this backward course, as already said, it receives and is mingled with the used-up material, whose loss its next wave has to compensate. And whatever tends to send on this doubly-defiled current over the whole body, with an imperfect performance of the purifying process—technically called *depuration*—must inevitably cause most serious interference with health and longevity.

"But the blood is not a mere circling fluid, 'self-contained.' In every circuit it makes, it loses largely, both in quality and quantity; and *its* loss must be made up. This is done through the stomach. Food is taken in there, masticated, softened, and mixed up, so as to be in a state of suspension and solution. The gastric juice—or peculiar secretion of the stomach—mingles with it; and the *digestion* is carried on, as if in a stew-pan. Having become a pulpy fluid, called *chyme*, the food moves slowly into the alimentary canal; there it receives further additions—bile from the liver, and juice from the pancreas or sweetbread; the nutritious portion, called *chyle*, is taken up by the absorbents, whose various tubes concentrate into one common duct; and this empties its contents into the venous returning blood, just before it begins its purifying circuit through the lungs. So the feeder is fed. But some things—alcohol happens to be one, and the poison of asps another—are impatient of so roundabout a journey; they must be to the blood at once. They will not wait to be digested; but, taken up as they are, by the veins of the stomach, are carried—little if at all changed—into the general venous circulation, and do their work there, whatever it may be, with almost instantaneous rapidity. What takes place ordinarily in the lungs requires a little special consideration. The blood having suffered exhaustion and loss in its work of nourishing all the various parts of the body, having received a supply it greatly needed from the stomach and bowels, in the form of chyle—as a help; and having got also, what in some respects it might have seemed to have been better without, the used-up material refuse of life and working—as a burthen,—it passes by the right side of the heart through the lungs; and, in the cell-like ramifications of these, it is brought in all its motley mass into contact with the air, which for that purpose has been taken in by the windpipe. This air parts with its oxygen; a large proportion of which unites with carbon and hydrogen in the blood, carbonic acid and watery vapour being extricated in consequence. This important change, chemically called *oxidation*, is really a *burning*. Though not accompanied by light or flame, it is, like ordinary combustion, productive of heat; and, in consequence, it will be readily understood that the process of respiration, when duly performed, fulfils two important objects—aerating the blood, and at the same time helping to maintain the due temperature of the body.

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* "ALCOHOL: its Place and Power. By James Miller, F.R.S.E., F.R.C.S.E., Professor of Surgery in the University of Edinburgh, &c. &c. London: Houlston and Wright, and W. Tweedie, and of all Booksellers. Cloth, 1s.

"BUT WHAT IS IT THAT IS THUS OXIDISED, OR BURNT BY THE BREATHED AIR? TWO THINGS. The used-up material of the structures, returned in the venous circulation, is either burnt off, or so modified as to be converted into the most suitable forms for final expulsion from the blood. The greater part is thrown off in the form of carbonic acid and watery vapour, while the rest, imperfectly oxidated, moves on into the general circulation, to be dealt with exhaustively in the lungs on its next transit, or to be disposed of by the liver, bowels, skin, and kidneys. This treatment of the 'waste' is essential, and must be done. But the doing of it is not enough, of itself, to maintain the general temperature. And so a portion of food, digested in the stomach, and received by the blood as chyle, is specially devoted to the process of burning too; that portion consisting of such articles of diet as contain no nitrogen—oil and sugar being special examples. In this wondrous living factory of ours, the waste material is not only burned off—as farmers do 'wrack' on the surface of their fields,—there is besides a special heating apparatus constantly at work; and so, by the twofold process, the blood is purified of its hurtful matter, while the whole frame is maintained in its due heat. Let either part of this process flag, and evil must ensue. Burn off all the blood's impurity, yet have an insufficient supply of extra fuel from the stomach—the body must grow cold.* Send an inordinate amount of peculiarly combustible† material from the stomach, so that *it* shall do almost all the burning—then the blood's impurity cannot be sufficiently consumed; venous blood will come to circulate more or less, instead of arterial; and the most serious consequences cannot fail to happen. The kidneys, and skin, and liver will make great exertions, no doubt—as excretory organs—to throw out the evil thus forced through the system, but they will not wholly succeed; and they themselves will suffer injury in the strain.

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* "It is not alleged that the whole of the heating process is done *in* the lungs. On the contrary, there is good reason to suppose (as will immediately be stated) that every act of nutrition and disintegration of tissue throughout the body—every change from fluid to solid, and from solid to fluid—is accompanied with disengagement of caloric. But obviously while much of the 'oxidation' is done *in* the lungs, almost all the oxygen enters *by* the lungs, whereby the 'oxidation,' or burning, is performed."

† "Whether it be because alcohol is 'peculiarly combustible' or not, may not be quite determined; but Prout and others have experimentally ascertained that less carbonic acid than usual is evoked during the presence of alcohol in the blood, and that that fluid is decidedly darker than in persons untainted by the 'poison.' It would almost seem as if alcohol, circulating in the blood, to a considerable extent suspended, for the time, the chemico-vital processes proper to the fluid in its normal state. Thus the oxidation of the phosphorus of waste tissue is sometimes so interrupted by alcohol, that the body of the drunkard smells of phosphorus, his breath presents a visible phosphorence, and his urine is luminous in the dark. As will afterwards be seen, this is the only luminosity which alcohol imparts to the debauchee."

The blood will remain impure, important organs of the body will be thrown into a state of disorder, and disease of a serious kind may be established. But the whole of the oxygen taken in by the lungs is not thus accounted for. About a fourth passes into the system, with the blood, without being spent at all on oxidation of the 'waste.' This portion of the oxygen cannot well be traced in its course; but there is good reason to believe that it acts an important part in the change of the nutritious part of the arterial blood into living tissue—supplying renewal for the 'waste;' and that it is again active in the crumbling down of that tissue—constituting the 'waste;' in both actions evolving caloric. And so here is a third way of maintaining the general temperature. Under the term 'alcohol' is included, let it be distinctly understood, every kind of intoxicating drink. All the varieties of spirits, wines, and malt liquors are the same as to their intoxicating quality; that invariably depends upon the presence of alcohol. This may be more or less diluted, mixed, coloured, and flavoured; or, as in the case of malt liquors, combined with a small quantity of nutritive material;* but it is always present, and according to its amount is the intoxicating power of the beverage. A man is apt to draw a broad distinction—greatly in his own favour—between himself drinking beer and another drinking brandy, as a daily habit; but the truth is, that both are drinking the same thing only in different guise and dilution; chemically and practically, there is much the same difference as between one who drinks spirits 'neat' and another who drinks his allowance of the same thing largely 'watered.' The one drinks alcohol slightly diluted; the other drinks alcohol much diluted, and somewhat modified by flavour: but both are drinking alcohol. Not a day passes but you may hear, 'I am no drinker; for years I have never touched spirits; I take nothing but wine.' The man who so expresses himself may be in the habit of taking his pint of sherry, or quart of claret, daily, or all but daily; and, while honestly convinced that he is touching no 'spirits,' is really swallowing the same amount of alcohol as if he had taken a glass or two of raw brandy or whisky instead. He believes that spirits are injurious; he would not take *them* for the world; yet all the while he *is* taking them; and surely it is of great importance that he should be undeceived. Let it be well understood, then, at starting, that all intoxicating beverages contain alcohol, as their characteristic and essential ingredient; and, however they may vary in taste or appearance, their chemical constitution as intoxicants is practically the same. Beer, no doubt, is less hurtful than brandy—wine less dangerous than whisky; but chiefly because they contain less alcohol.

"*Alcohol is* a poison. In chemistry and physiology, *this is its proper place.*

"Many readers may receive this dogmatic assertion with a 'Pooh, pooh'—'Fanaticism and folly'—'We know better.' Let me support the assertion, therefore, by authority. 'The sedative action of alcohol on the brain,' says Christison—and we know no higher authority, either as regards poisons or the articles of the materia medica—'constitutes it *a powerful narcotic poison.* For its effects as such, if rapidly brought on by a large dose, *there is no antidote known;* the only efficacious treatment consisting of speedy evacuation of the stomach, and the employment of brisk external stimuli.'

"NOW LET US INQUIRE AS TO THE EFFECTS OF THIS FORMIDABLE AGENT.—Obviously, they will vary according to the age and condition of the recipient, and especially according to the manner and amount of the administration.

"I. Alcohol absolutely pure is seldom, if ever, taken internally. To make it at all tolerable to the stomach, it must be diluted; and the strongest brandy, whisky, or other 'spirit' contains a large proportion of water—thirty, forty, or fifty per cent. But though thus modified, a large quantity in the adult, or a small quantity in the child, may prove rapidly fatal. It is almost at once absorbed by the veins of the stomach, and mixing with the blood is carried to all parts of the body, affecting certain of these very specially,—namely, the nervous centres. These are paralysed; the heart stops, and life ceases. A man quaffs a quart of brandy almost at a draught, tumbles down, and dies on the spot. The shock of the large dose of alcohol on his nervous system, with which it is almost immediately brought into direct contact through absorption into the blood, acts like a blow on the head, or a kick on the stomach. Prussic acid is not more deadly. To obtain some idea of the rapidity with which alcohol dashes through every obstacle to reach the brain—the material organ of reason, and the special object of the poison when once it gains access to the body—consider the following experiment of Dr. Percy:—He injected about two ounces and a half of alcohol into the stomach of a dog, and the animal dropped dead almost instantaneously. As soon thereafter as he could remove the brain—an operation which occupied only a few minutes—and place it in an apparatus for distillation, he by that process extracted from it a notable quantity of the alcohol—more than from an equal weight of any other part of the body, or of the blood itself.

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* "Very small in the best of them, especially if you exclude the saccharine stuffs. For, according to Liebig, suppose a man to consume, daily, eight or ten quarts of 'the best Bavarian beer,' he will obtain from it, in the course of twelve months, no more than the same quantity of nutritive constituents contained in a five-pound loaf of bread."

"II. But the dose may not be such as to kill at once by shock. The bottle, we shall suppose, is consumed more leisurely, and by and by the man is found in a state closely resembling apoplexy—with suffused face, labouring pulse, heavy, noisy breathing, and total insensibility. What has happened? The alcohol absorbed has reached the nervous centres as before, and has all but paralysed their functions; in consequence, the heart and lungs are both acting most imperfectly; the blood is failing to receive its due proportion of oxygen in its oozy passage through the lungs, and is, besides, directly altered for the worse by the alcohol's actual presence in it. The man is choking gradually, as if with a rope round his neck, or a clot of blood in his brain. The hand of alcohol is on his throat; breathing becomes slower and slower, the heart beats more and more faintly, the body grows cold, and in no long time all is still in death. Peculiar circumstances may render such an event possible under even a comparatively small dose. Ordinary 'intoxication' may not have occurred, yet the alcohol may so injuriously determine to and act on the brain, as to cause congestive apoplexy, modified by symptoms of poisoning. And under this, life may give way, as in the following case:—A gentleman supped out, drank several tumblers of toddy, came home, went to bed. In the morning he was found insensible. A physician, hurriedly called, at once recognised the symptoms as those of narcotic poisoning, and treated the patient accordingly. Reaction began, but failed, and death occurred within a few hours. On dissection, no organic lesion or other cause of death was detected. The contents of the stomach were carefully secured, and made over to the care of a skilful chemist. Morphia was suspected, but nothing could be found—save alcohol.

"III. *INTOXICATION!* We need not describe what every one has seen, and not a few have felt. Let us, however, trace the action of the agent in this too common variety of alcohol's effects. Reaching the brain more gradually and in smaller quantities than in the previous examples, the alcohol acts as a stimulant at first. The intellectual functions are excited, as shown by gaiety, talkativeness, animated expression, play of fancy, and increased rapidity as well as variety of thought. But the paramount function of *voluntary control*—the great distinguishing characteristic of the human mind—is already affected otherwise than by increase or exaltation. While perception, memory, and imagination are specially excited, the will, almost from the first, is sensibly impaired. The mind suffers in its best part, through even slight tampering thus with the material organ wherewith it is connected.

"The heart is roused, and beats quicker; the general circulation is hastened, and the whole frame feels warmer, stronger, and better.

"As the dose is continued, its effects are not only observed in the functions of the anterior and upper parts of the brain—its intellectual portion—but extend to the deeper and posterior parts, connected with special sense and muscular power. Sight and hearing are affected, the limbs grow weak and tottering, the head swims, the tongue refuses distinct articulation. At the same time intellectual excitement becomes more and more decidedly intellectual perversion, partaking of the nature of delirium; reason is at a discount, and voluntary control placed more and more in abeyance. What is specially human is lessened, what is merely animal is intensified; the passions rise rebelliously, and defy all moral control;. and the man becomes, under his own act, what the law has quaintly termed him, '*voluntarius demon.*' He is temporarily *insane*, and fitted for any act of violence to himself or others. But as the poisoning material filters on into the frame, its effects advance still farther. All semblance of stimulation, in any part or way, is over now. Intellect is all but departed; and muscular power, as well as the special senses, are gone or going too. Besides involvement of the whole brain, the upper part of the spinal cord is suffering; and, in consequence, the heart is weakened, the pulse is labouring, the respiration is oppressed; the face, that awhile ago was pale and haggard, is growing swollen and livid; and unless a halt is called now, life will speedily be in peril by coma. The best that can happen is a heavy deathlike sleep of long duration, with an awakening to fever of body and misery of mind.

"OR THE MENTAL AFFECTION MAY BE OF A DIFFERENT FORM STILL—WHAT IS TERMED '*DELIRIUM TREMENS:*'—the body weak, the nerves unstrung, the mind a prey to all manner of rapidly shifting delusions, with suspicion and fear; violence to others improbable, but injury to self not unlikely. This may be the result of an occasional bout of hard drinking, or may form a part of the 'chronic poisoning.' Ordinarily, it is connected with some aggravated excess in the habitually intemperate. As a sample, take a case—in some respects curious. A gentleman of middle age, and active business habits, had for years been intemperate; and more than one attack of *delirium tremens* had imperilled his life. When first I saw him, he was in his shirt, hopping incessantly from chair to chair, in order to avoid myriads of snakes that were crawling on the carpet. Then the vision changed upon him, and he rushed about more violently to escape from men following him with sharp knives. Suddenly he leaped upon the bed, arranged his limbs quietly, and scarcely breathed. He told us he was dead, and read out an announcement of his sudden and unexpected decease, from the page of an imaginary *Courant*, concluding with 'Friends will please to accept of this intimation.' So he lay for some minutes, affording breathing-time to his attendants; but all of a sudden he rose, went into the sitting-room, and began to write with a trembling hand hastily at the table. He said that he had stupidly forgotten to add a codicil to his will, and was glad to find that it was not too late to supply the omission. Having written a tolerably coherent statement, to the effect that he had died on such a date, and that he begged his employers to support his son as his successor in business, he quietly returned to his bedroom; but no sooner did he cast his eye on the empty bed, than he broke forth in a most violent tirade against the attendants for having stolen his body. 'Where is it? where is it? I left it lying there when I went into the parlour to write the codicil, and when my back was turned some scoundrel has taken it away. Bring it back instantly.' And so he lapsed into excitement again. But by and by stupor came on, he lay quiet once more, and despite of all the help that we could give, the 'died at Edinburgh' became a sad reality. The man does not always die, however; he may recover many a time, drinking on and on; but death in the paroxysm is not unfrequent; and, besides, this trembling delirium may pass away, only to be followed by steady insanity.

"ALCOHOL AS FOOD.—Here is the fundamental and fatal error; men esteeming that to be food, and using it as such, which is really not food, but physic. Food, properly so called, is that which enters the stomach, and is thence absorbed into the general circulation, with the double object of nourishing the body and maintaining its due temperature. Such food meets with a solvent in the natural secretions of the stomach, and of other organs connected with the chyle-making apparatus—such as the salivary glands, the liver, the pancreas; and, besides, a solvent is needful also from without—holding the food in solution at the time of being taken, or swallowed along with it, or after it, in sips or draughts. Now, can alcohol be duly entered here as food, or solvent for food? Not as the latter, certainly. It refuses to act along with the gastric juice. 'It is a remarkable fact,' says Dr. Dundas Thompson, 'that alcohol, when added to the digestive fluid, produces a white precipitate, so that the fluid is no longer capable of digesting animal or vegetable matter.' 'The use of alcoholic stimulants,' say Todd and Bowman, 'retards digestion by coagulating the *pepsin* (an essential element of the gastric juice), and thereby interfering with its action. Were it not that wine and spirits are rapidly absorbed, the introduction of these into the stomach in any quantity would be a complete bar to the digestion of the food, as the pepsin would be precipitated from solution as quickly as it was formed by the stomach.' In the laboratory of the pharmaceutist, alcohol is very valuable as a solvent; it holds many things in admirable solution, and many a good tincture it makes. But in the living stomach of man—which *ought* to be no drug-shop—alcohol tends to harden and coagulate rather than to soften and dissolve. 'It is through the medium of the *water* contained in the animal body,' says Carpenter, 'that all its vital functions are carried on. No other liquid than water can act as the solvent for the various articles of food which are taken into the stomach.' Water dissolves them there; water carries them into the blood, and through the frame; and water helps to work them off again when useless. Indeed, water seems to have a very remarkable power in depuration of the system from the noxious presence of effete material—more especially when taken beyond the limits of what mere slaking of thirst requires. And on this *water-power*, no doubt, much of the success of 'the water cure' depends.

"BUT IF ALCOHOL BE NO SOLVENT OF FOOD, IS IT FOOD ITSELF? Let us see. Can it nourish or repair the waste of tissue? Not at all. It contains no sufficient chemical constitution for that end; and, besides, as we have seen, it is conveyed *unchanged* into the blood, and so circulates there until either disposed of by combustion in the lungs, or removed (more or less modified then) by the organs of excretion. Does it help to maintain due temperature? It is only too ready to do so. It is very forward to be burnt in the lungs. But is its action there desirable? The mixed ordinary food of man (as beef, bread, and vegetables) which nourishes his body—doing specially and well what alcohol cannot do at all—contains not only the peculiar materials for nutrition, but more or less of *fat* or *oil*, and *sugar* or matter convertible into sugar. Now these—especially the oil—are very suitable for oxidation by the lungs,—hence often termed 'respiratory food;' and their peculiar function seems to be the undergoing of that process, with a view to maintain temperature—in so far as such maintenance may be necessary, in addition to what is done by oxidation of the waste material returning in the venous blood. In other words, the natural arrangement as to maintaining temperature seems to be as follows:—Probably every act of nutrition and every act of disintegration of tissue—the passing of fluids into a solid, and of solids into a fluid condition—is attended with more or less production of heat; a special supply of spare oxygen being provided for that purpose. Besides, the disintegrated and waste material in the venous blood is burned off, combining directly with oxygen taken into the lungs. And any further combustion which may be necessary for completing the efficiency of the warming apparatus is effected by means of the oil and sugar, more especially the former, which ordinary food supplies. Now, it is ascertained that in ordinary food, received in even moderate quantity, there is not only enough of these combustible materials to ensure sufficient temperature, but more than enough—the superfluity being stored up, as it were, in the ordinary fatty tissue throughout the body, to meet accidental scantiness of supply, through long fasts or famine.

"Suppose, now, that alcohol is taken in any considerable quantity, along with the ordinary supply of food. It gets speedily into the blood, and into the lungs. There it has a greater appetite for oxygen than any of the other combustible materials we have mentioned; and accordingly is burned off first. The temperature may be maintained in this way, no doubt. But what happens in consequence of the temperature being thus maintained? Two things; or one of two things at the least:—The oil and sugar are not burnt off sufficiently, and these materials accumulate unduly in the body; or the waste material of the blood is not burnt off sufficiently, and this accumulates unduly in the body—poisoning the blood, and producing the serious consequences formerly spoken of; or both of these results may occur, as we believe most frequently is the case. And a third evil is also possible:—The 'spare oxygen,' as we have termed it—intended to circulate with the blood to the remotest parts of the system, and to act an important part during both the waste of tissue and its repair, so generating heat—may also be seriously encroached upon; so great and greedy is the appetite of alcohol for this substance. The obvious deduction is surely this: that when man receives a fair average supply of food, he obtains at least enough of combustible material thereby; and that when alcohol is taken in addition, it is unnecessary; the act is a work of pure supererogation—so far as warmth-giving intra-combustion is concerned. And further, the alcohol so taken is not only unnecessary, it is also hurtful, by preventing certain changes in the constituents of the blood, the occurrence of which is essential to health. Alcohol, in short, is in such circumstances not only unnecessary but injurious.

"THE POWER OF ALCOHOL TO SUSTAIN A MAN UNDER BODILY LABOUR.—Many believe that such power exists to a very great degree, and they ground their belief on personal observation. All is based, however, on a fallacy. Labour exhausts vital strength—wasting structure, lowering function. The natural remedy for such exhaustion is food and rest. Waste of tissue is repaired, and the living power of the renovated tissue re-accumulates, ready for a fresh bout of working. The exhaustion of bodily labour, remember, implies disintegration of substance, as well as diminution of power, especially in two tissues—the muscular and nervous: the muscular is the direct agent of work; the nervous is the inciter and inspector—the 'oversman;' and both are more or less exhausted by their respective duties. Now, how is such exhaustion to be either retarded or recovered from? We again say, by food and rest, properly arranged in regard to time and quantity. Let a man have sufficient food, and sufficient rest, at the proper times; and he needs no other corporeal help for the due discharge of his daily toil. He is thus enabled to overtake as much work as his frame is naturally fit to bear. And if, under such circumstances, he break down, or threaten to do so, it is a sign, not that he needs more working power, but that, being overtasked, a portion of the exacted work should be foregone. And, consequently, the man who stimulates himself, under such circumstances, is guilty of folly; while he who stimulates another, in similar circumstances, is guilty of cruelty and oppression. Now, can alcohol be brought under the category of 'food' here? As such only can it prove a true antidote to exhaustion by labour. No one asserts that it has any power to repair muscular tissue. Has it any power to nourish or repair nervous tissue? This question is open to debate; but our best authorities answer it in the negative. Well, then, if you give alcohol to a man exhausted, or being exhausted, by labour, what effect does it produce? Does it not revive him, giving to his hand a stronger grasp, and to his limbs new vigour? do not the strokes of his hammer gain a fresh force, and does not the task which he had almost abandoned become rapidly consumed? How is this? Not that he has got any nourishment or repair—any real return of strength; but because he has been goaded on to expend the remainder of his then existing strength or working capital more rapidly and determinedly than he otherwise would or could (or should) have done: the ultimate result, of course, being, that when the task is done, the man is done too. The exhaustion is infinitely greater than it otherwise would have been.

"The alcohol does not give substance and strength to either of the decaying tissues; it only *stimulates* one of them—the nervous; and so forces on this to force on the other. The nervous system is to the muscular as the rider to the horse, guiding and controlling its movements. Alcohol provides this rider with a spur and whip, whereby the poor horse, jaded though he be, may be urged on to do an amount of work which otherwise he would have broken down under. With what benefit to the horse? Exhaustion, fatigue, founder. With what benefit to the rider? There is retribution here; the result is, fatigue and founder too: for the alcohol, acting as a stimulant to the nervous system, exhausts *its* force and disintegrates *its* tissue in compelling it to urge on the muscles to a more rapid exhaustion of their force and disintegration of their tissue. The spur and whip, in their effects, exhaust the horse, but the labour of whipping and spurring exhausts the rider too; and after the effort is over, both the inciter and the incited are in much the same plight. Had it not been better to have ceased from work for a time, giving the beast of burden its food and rest, the dismounted rider likewise seeking his refreshment and repose; so that, after a while, both might have started with new mettle? If alcohol has any power whatever in giving strength, wind, endurance, *condition*, why do trainers make so little use of it in preparing their men for feats of great exertion? *All* trainers use it, we know, most sparingly; not only in small quantity, but much diluted. And the *best trainers* do not employ it at all; strictly forbidding its use, indeed, because experience has told them of its hurtful tendency, in opposing rather than favouring their object in view. Tea and coffee, then, may rank both as food and medicine. And the question naturally arises, in reference to their latter character, whether the copious and constant use of them as food is quite proper and safe? This, as we have seen, is *not essential* even under the greatest exertion. And without presuming to dogmatise, we would venture to say that when used as ordinary diet, or as luxuries in connexion with it, they ought to be taken weak, as well as in moderate quantity—in other words, temperately; while large and strong doses ought to be reserved for the necessities of the nervous system arising from exhaustion by labour or thought, depression by accident, or disorder by disease. When judiciously used, they may contribute greatly to our comfort—as much as any form of alcohol can do, and with none of its sinister results on body, mind, or morals. Call them medicines, if you will. They are 'domestic medicines,' at once safe and suitable; and, as such, the canister may range on the frugal cupboard far more appropriately than the decanter or the black-bottle, the tankard, the greybeard, or the glass. The great advantage of the water-drinker, as compared with the alcoholist, under work, is this. He has the same strength, with greater self-control. He is ready to stop, when necessity requires that he should, and runs less risk, consequently, of injury by excessive strain. He does not expend a temporary energy, at the expense of future exhaustion. He does not avail himself of a doubtful and deceitful help, at the cost of deterioration of the blood, and consequent danger to health and life. He does his work at least as copiously and as well as the other, even for a time; and in long continuance of labour, he will do it both more copiously and better. He obtains his desired end in all respects satisfactorily. There is no lassitude, headache, feverishness, foul tongue, or aching limbs the next day—even after the hardest labour. All is fresh, and supple, and free. *There is no reaction.*"*

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* "I have backed as many as 60 tons in a day, with perfect ease," says a London coal-whipper, "*since I took the pledge.* But, *before*, I should scarcely have been able to crawl home; *certain to have lost the next day's work.*"

Many who have never been numbered among Temperance Societies are now convinced of this necessity. Already beneficent results have flowed from the prohibition of the liquor traffic on one day in the week in Scotland, and from the reduction of the facilities for drinking in the morning and at night of other days. In Glasgow there has been, during three years since the passing of the Act, a reduction of police cases of drunkenness, amounting to 18,502, while the population has increased 67,000. This success has been remarkable. But much more must be done by the legislature. The advantage gained is a fixing of the lever, and so long as there is a superincumbent mass of drunkenness legally encouraged, all available force must unite to remove it."

"KILLING NO MURDER."—The case which I give below was published by Dr. Bright, in a Paper on Jaundice, in the first volume of Guy's Hospital Reports, and it is a counterpart of the cases quoted by Dr. Alison. It strikingly shows the barbarity of the present authorised mode of treatment by surgeons and physicians. There is no principle of scientific knowledge shown in the treatment of such cases; but, on the contrary, the patients are seen by them sinking under their hands, day by day, as the vital powers of the body are gradually sapped by the bleeding, blisters, and purgatives, which gradually destroy the nervous vitality, until nature kindly takes the poor tortured sufferer out of their hands. The physic in this case first brings on jaundice, by constantly causing nausea, which ipecacuanha is intended to produce. Then when it is found that the liver does not act, to make it do so, the strange plan of further weakening it by drawing fourteen ounces of blood from that region is adopted; this, and the doses of physic, effectually take away all chance of restoration. And it is striking, how, day by day, as such outrages were perpetrated on nature's laws and common sense, first one organ, and then another, ceased to act, until a cruel and agonising death released the poor sufferer.

"CASE 4.—Sarah ——, aged twenty-eight, was admitted into Guy's Hospital, as a surgeon's patient, on the 6th of August. She was a married woman, and had borne two or three children; but had latterly been separated from her husband, and was said to be much addicted to drinking. As she had sores of a very suspicious character, she was ordered to take sarsaparilla three times a day, with five grains of the compound ipecacuanha powder, and of the Plummer's pill, every night, which she continued for a considerable time. On the 13th of November, I was requested to take charge of her, as she was apparently very ill; had been complaining of abdominal pain for the last week; and during the last two days had become jaundiced. I found the bowels rather confined; urine tinged with bile; pulse moderate, but quick; slight tenderness at the pit of the stomach. (Fourteen ounces of blood were ordered to be drawn by cupping from the region of the liver; the belly to be fomented: five grains of mercury with chalk to be taken immediately, and half an ounce of castor-oil four hours after, and to be repeated until the bowels should be relaxed.) 14th.—There is still some tenderness on pressure at the pit of the stomach, and accelerated pulse. (Fifteen leeches to the pit of the stomach; the mercury with chalk, and the castor-oil, to be repeated.) The yellowness increased; the stools continued of a pale clay colour; the tenderness of the upper part of the abdomen continued. It is unnecessary to give a detail of all the daily symptoms. Cupping, mercurial purges, and blue pill, with fomentations, were continued; and during ten days no very remarkable change occurred. (*The woman must have had a strong constitution, and a considerable degree of vital force, to stand all this as well as she did.*) 24th.—Slight tenderness over the whole abdomen; colour very intense; pulse 96, small, and rather sharp; respiration, 27; bowels confined; thirst; occasional sickness; and occasional pains in the abdomen, much relieved by the fomentation. (*Mark the relieving effort of our plans in such cases; why was it not continued when it gave relief?*) 28th.—She generally prefers the sitting posture in bed. Lips dry; tongue moist and red; some sluggishness in her mode of speech, and a plaintive tone (*no wonder*); pulse 88; no sickness;

six or seven loose dejections. (Twelve leeches to the pit of the stomach; a linseed poultice to the belly.) 29th.—One copious lumpy white stool. Pulse, 96; slight tenderness of pit of stomach; respiration tranquil; tongue moist, but more red at the edges. December 1st.—Her pupils are rather dilated; her mode of utterance is dull and indistinct; complains of loss of power in the left hand; the right is already disabled by disease. 2nd.—Is lying on her right side, drowsy, with her legs drawn up, moving her left hand with a kind of jactitation, often raising it to her head; she is capable of being so far roused as to put out her tongue when pressed to do so. Tongue moist, and red at the edges; the pupils are dilated. (A blister to the crown of the head; a carthartic enema.) 3rd.—Yesterday evening she was screaming loudly, with her tongue protruded between her teeth. To-day she is in a state of perfect coma, with the eyes turned up. She is incapable of being roused, and has taken no nourishment or medicine since yesterday. She died the following day."

Mark, not one single application was given with a view to nutrition;—it was all fire and sword against the frame, until it succumbed to the superior force, skill, and science brought to bear against it; and all this done in clear contradiction to the Faculty's own discoveries,—that the life of the body exists in the nervous vitality, the vis vitæ of the ganglionic system, or nerves of nutrition. They say, whatever lowers this brings on disease and death, and yet they lower this power with a promptitude and with as steady an aim as a rifleman does his gun, and with as fatal an effect. I give the following case in Queen Elizabeth's time, of the Earl of Derby, which shows that the identical mode of action was then in use as now;—the same war to the knife against the delicate wonderful structure of the human frame. The doctors, however, had not then made the discoveries of the functions and nature of the nervous system, which are now so clear; and, consequently, they are entirely unjustified at the present time in using the barber-surgeons' mode of practice.

THE FOLLOWING IS QUOTED FROM ILLUSTRATIONS OF BRITISH HISTORY, by Edmund Lodge, and shows that the practice of killing by bleeding, blistering, and physic, was exactly the same in A.D. 1594, as the previous quotation shows it is now in A.D. 1858, as practised by the "Qualified" in onr own days. It does not appear that there has been any variation in the 264 years, except that medical professors, in our day, do not attribute the failures to witches, but to the want of the power of life, which their treatment so effectually destroys.

"*Indorsed*, 'TOUCHING THE DEATH OF THE EARL OF DERBY, APRIL, 1594.'

"The 5th of April, 1594, his Honour fell sick at Knowsley; on Saturday he returned to Lathome, and feeling himself worse, he sent to Chester for one Dr. Case, who, the week before, had given physic to his lady. On the Sunday his Honour had cast seven times before the doctor's coming; the colour of his vomits was like soot or rusty iron; the substance gross and fatty; the quantity about seven pints; the smell not without some offence; his Honour's water, in colour, substance, and smell, not unlike his vomits. The same night he took a glister, which wrought five times. On Monday morning he took one drachm of rhubarb, and half an ounce of manna, in a draught of chicken broth, which wrought nine times. On Tuesday, because of his continual bleeding by vomits, he was most instantly intreated to be let blood, yet by no means he could be persuaded thereunto; therefore, that day, only fomentations, oils, and comfortable plaisters were applied. On Wednesday, by the appointment of all his doctors, he took another glister, which wrought six times; and on Thursday he took another purge, which wrought with great ease nine times. The same night he took some diascordium, which somewhat stayed his stomach from vomiting, the which never ceased, more or less, in all the time of his Honour's sickness. On Friday he took a diaphorecion, or a medicine to make him sweat; but he could not sweat, although internally and externally all helps of art were used.

That night his water stayed on a sudden. On Saturday all means were used to provoke water,—as a glister, drinks, fomentations, oils, poultices, plaisters, and syringes,—but nothing prevailed; on Sunday and Monday a catheter was used, which the surgeon often sucked, but no water appeared. On Tuesday nature declined, and his Honour most devoutly yielded his soul to God.—(*And so he got out of the hands of the doctors.*)

"In all the time of his sickness, he had fifty-two vomits and twenty-three stools. The original cause of all his diseases was thought by the physicians to be his long and over-violent exercise, which his Honour took four days in the Easter week, wherein he vehemently distempered the whole state of his body. His Honour's diseases were apparently vomiting of rusty matter and blood, yellow jaundice, swelling of the splene, melting of his fat, staying of his water, the hiccough. His Honour took Beza stone and unicorn's horn.

[It appears the doctors were so confident in their mode of practice, that they could only account for its not succeeding by attributing death to witchcraft: a council was called in, and the following report drawn up.]

"*A brief of such Reasons and Conjectures which caused many to suppose his Honour to have been bewitched.*

"1. On Thursday night, being the 4th of April, 1594, his Honour cried suddenly in his sleep, started out of his bed, sought his lady, whom he thought in a dream to be dead.

"2. On Friday, in his chamber at Knowsley, about six o'clock at night, there appeared a man, tall, as he thought, who twice crossed him swiftly; and when he came to the place where he saw him, he fell sick.

"3. The same night he dreamed that he was stabbed to the heart, and wounded in many other places of his body.

"4. There was found in my Lord's chamber, by one Mr. Hallsall, an image of wax, with a hair drawn through the belly thereof, as he reported upon his oath.

"5. One Jane, a witch, demanded of one Mr. Gowleborne, his Honour's secretary, whether my Lord felt no pain in his lower parts, and whether as yet he made any water; and at that very time, as it is thought, his Honour's water stayed.

"6. All physic wrought well, and yet he had no ease; his diseases were many, and his vomits violent, and yet his pulse ever remained good and perfect.

"7. He himself in all the time of sickness cried he was bewitched.

"8. He fell into a trance twice, not able to stir head, hand, or foot, when he should have taken physic.

"9. In the end he cried out against witches and witchcraft, reposing his only hope of salvation upon the merits of his blessed Saviour.

"10. One of the witches having said well the Lord's prayer, and being forced to call upon the name of Jesus, that if she had bewitched his Honour, she might not be able to say it, again before the examiners she said all well, till she came to *Dimitte nobis debita nostra*, which by no means she could say or repeat, although it was often rehearsed to her." (*Whether or not they burnt the witch is omitted.*)

"THE CASE OF MR. STAFFORD, M.P.—(Communicated to *The Morning Star*, Nov. 28, 1857.)—The premature and sudden death of Mr. A. Stafford is suggestive of so many painful reflections, that I am prompted to analyse in detail the medical evidence adduced at the inquest, and to inquire whether it is not possible, by the adoption of a more rational system of medical treatment, to ensure more happy results, and to avert the recurrence of similar exhibitions to that which preceded the death of the lamented member for Northamptonshire. It is indeed sad to think that there should exist such glaring differences of opinion between medical men, and sadder still to know how many valuable lives are lost through the ignorance which prevails on the subject of the healing art.

I must, *in limine*, disclaim any intention of uttering a single word that could reflect in the least upon the skill of Dr. Griffin, whose attention to, and anxiety for, his patient seems to have been unremitting. In fact, the verdict of the coroner's jury exonerates him, individually, from all blame. It is the system of medical treatment that I would take the liberty of examining.

"With this object in view, it is necessary to recapitulate portions of the evidence elicited at the inquest. Respecting the previous state of Mr. Stafford's health, we are told by his servant, Michael Naughten, that, with the exception of two attacks of illness, which together lasted not more than two hours and a half, it had been 'very good' during twenty-three years which he had lived with him. On Wednesday afternoon, the 4th of November, about three o'clock, Mr. Stafford complained of a pain in the lower part of the stomach, and said he feared that 'nasty old pain' was returning again. It became worse up to five o'clock, when Dr. Griffin, of Limerick, was sent for, and he arrived at Cratloe at half-past six o'clock. He bled Mr. Stafford and prescribed for him, leaving Cratloe between eight and nine o'clock. Michael Naughten looked into his master's bedroom about eleven o'clock, and saw that he was 'breathing very hard, much more so than usual. He was snoring at the time.' This was unusual, and he adds:—'On different occasions for the last sixteen years I was in the habit of going into his room, but I never could open the door without awaking him.' Michael Naughten again visited his master at two o'clock a.m., when he found him asleep 'lying on his back, and breathing harder than before.' He did not awake him, as he thought it was all right, and was delighted to see him asleep. At five o'clock in the morning, Mr. Stafford walked to Naughten's bedroom door, which was within a yard of his own, and called out, 'Get up; my arm is bleeding.' Naughten tied up the bleeding arm of his master, who, after a few minutes, relapsed into the sleep of narcotism. Michael Naughten roused the other servants, and sent immediately for Dr. Griffin, who arrived at Cratloe between seven and eight o'clock in the morning (November 5). He endeavoured to arouse his narcotised patient by forced walking, for 'about a quarter of an hour.' Naughten says, 'We could not keep him awake by walking any longer.' Dr. Griffin then ordered him to be put sitting in a chair, and told us to slap the soles of his feet. We put him on the bed for the same purpose. The thing next to hand was a razor-strop, which Dr. Griffin got himself, and slapped the soles of his feet for about twenty minutes. By hitting him two or three strokes on the sole, he would open his eyes, look around, and then fall asleep again. I think the doctor took the slapping to himself for the first twenty minutes, but then his hands got blistered, and he could not continue to hit him hard enough, for he was getting heavier asleep. I then strapped him with the razor-strop until the handle broke, when we got the carpenter to make battledores about eighteen inches long, four inches wide, and half an inch thick. These were made of deal. We broke about a dozen of them. We were slapping him with these almost all the time on the soles of his feet. We tried the palms of his hands and the calves of his legs, but that had not the effect of keeping him awake, and we had to go to the soles of his feet again. These got quite sore, and the skin came off. He would shake his leg sometimes, and draw it back from the person that would be hitting him, and then fall asleep once more. We were obliged to hit him hard enough to make him feel it all over. He would sit up in the chair, in spite of two men that would be holding him, and he would be scarcely up until he would fall asleep again. We continued beating him from about eight o'clock in the morning until between eight and nine o'clock at night. Five men took part in the beating, relieving each other. The doctor was present during the whole time. It was by Dr. Griffin's directions the beating process went on. When we gave up the beating, he seemed more lively. He used to stand up sometimes, and walked about once, and then fell into bed again. The dozen boards that were broken were fractured by the force of the blows that we gave him. When we ceased beating, he was put into bed by Dr. Griffin's directions, and in his presence. The doctor asked me, when he came in the morning, whether I had given my master the powder and the bottle he directed? I told him that I had not, and he said, 'I am very glad that you did not.'

"Dr. Griffin sent for Dr. Wilkinson, of Limerick, who arrived at Cratloe about one o'clock, and left about three or four o'clock. Dr. Wilkinson, after consulting with Dr. Griffin in the next room, sat down and looked at Mr. Stafford, and said, 'Beat him hard.' Dr. Wilkinson told Naughten that his master had got 'an over-dose of laudanum.' Dr. Griffin remained at Cratloe all Thursday, and left next morning, November 6th, about nine o'clock. Michael Naughten sat up with his master all Thursday night, and visited him about twenty times. Mr. Stafford slept and started alternately during the night, breathed very hard and snored; 'he was always nodding asleep and snoring up to the time of his death.' Mr. Stafford left Cratloe on Tuesday, the 10th of November, and slept that night at Limerick, and arrived in Dublin on the following day, Wednesday, at four p.m., his journey by rail having occupied four hours and a half. After 'nightfall' of this day, he was visited by Sir Henry Marsh, whose evidence we will defer until we have heard that of Colonel Herbert, M.P., the Chief Secretary for Ireland, who says:—'I was a very intimate friend for many years of the late Mr. Stafford, and visited him during his recent illness in Dublin. . . On last Thursday, Nov. 12th, about twelve o'clock, I received a letter from him, in which he stated that he had been dangerously ill, and that it was doubtful whether he would ever recover. . . . When I arrived, he was lying on a chair in his room, with his feet on another chair. His servant was dressing the soles of his feet. The first sound that I heard was a groan of pain, from his servant apparently touching his foot. I was much shocked with his appearance. He described the agonies he had suffered during the treatment, and was certainly convinced that the cause of his death was the treatment to which he had been subjected. I attended him to the last, and was present on Sunday evening (November 15th), when he died. He gave me to understand that he had suffered very acutely from the pain of the disease, but he alluded more particularly to the pain of the beating.'

"Let us now examine the evidence of Sir Henry Marsh, who says:—'Upon this day week, Wednesday last, November 11th, I first attended him. I saw him about seven o'clock on that evening. He was up, but in a state of extreme debility. At the moment I saw him, I felt certain that he had travelled too soon. He was not fit for such a journey as from Limerick. He had great difficulty in getting upstairs.' May this not be accounted for, in a great measure, by the state of Mr. Stafford's feet, which Colonel Herbert describes, and which he saw on the day following Sir Henry Marsh's visit? 'I have a strong impression,' continues Sir Henry, 'that the violent and agonising pain complained of in the original attack arose from gall-stones. I suspected it during the lifetime of Mr. Stafford, but had no proof of it until the post-mortem examination, during the whole of which I was not present, but at quite sufficient to form that opinion. The gall-stones were in the gall-bladder, and I am led to think that one had commenced to get into the duct, and caused the great pain.

SODA WATER MACHINE BOTTLE.—This machine bottle, called Gazocne, may be purchased of Simpson, 315, Oxford-street, London; one quart, a guinea; two quarts, two guineas; and with a powder purchased at any chemist's, soda water, or lemonade, or ginger beer, may be produced for about twopence per quart, to keep any time, and drawn off as required: powders sent with the machine.

SYRUP for the above, or for ice creams, or iced arrow root:—Two pounds of garden rhubarb stewed in one pint of water, in a jar, strained through a jelly bag, and to each pint of liquid add one pound of lump sugar, and one ounce of candied lemon peel; boil for half an hour, and when cold, bottle it for use.

The following Extracts are from "FRUITS AND FARINACEA THE PROPER FOOD OF MAN," by J. SMITH. *London, John Churchill, Princess Street, Soho. Price 5s.* A most valuable work, and well worthy perusal.

I give, as follows, a considerable extract from this work, but cannot speak from experience in our practice if total abstinence from animal food is best for health in all cases. In all cases of inflammatory attacks we always forbid animal food, and some cases of stomach disease. We have had frequent proof of the benefit of abstaining from animal food in bronchial disease, and in all cases of invalids have found it necessary to restrict the patients to a very moderate quantity. There can be no doubt, a great amount of disease is caused by taking animal food in the quantity it is consumed. The book is well worth attention, and contains many facts in favour of farinaceous and vegetable diet which cannot be denied.

"Dr. William Hillary, in his Inquiry into the Means of Improving Medical Knowledge, says:—'Their food, during the first ages of the world, was taken from and chiefly consisted of vegetables, and their fruits and seeds, with the addition of milk from their flocks; and water was their drink.' He also infers that, as their food was plain and simple, their diseases were also simple and few, and therefore more easily cured—either solely by the efforts of nature, or, when the assistance of art was necessary, by the help of a few simple medicines or applications—than they were afterwards, when diseases were increased, and more complicated by the various inventions of luxury. Porphyry, a platonic philosopher of the third century,—a man of great talents and learning, and of very extensive research and observation—investigated the subject of human diet with great care and diligence. He says:—'The ancient Greeks lived entirely on the fruits of the earth.'

"Hippocrates and Celsus confirm these statements respecting the primitive regimen of mankind; and, in fact, 'all writers of antiquity, of every nation, —historians, physicians, philosophers, and poets,—assert that the first generations of men, who lived nearly a thousand years, were perfectly natural and simple in their diet.' How long mankind continued to live upon the simple productions of the earth, we have no means of ascertaining. St. Jerome, Chrysostom, Theodore, and other ancients, as well as moderns, maintain that all animal food was strictly forbidden before the flood; but, long before that event, they had transgressed the law of God; and there can be little doubt, that the flesh of animals had for some time previously formed a material part of their diet. We read, that 'all flesh had corrupted his way upon the earth;' and that 'earth was filled with violence through them:' and God said—'Yet his days shall be an hundred and twenty years.'

"When the deluge had swept away the first generations of man, permission appears to have been granted to him to eat flesh-meat; as we learn from the following words: —'Every moving thing that liveth shall be meat for you; even as the green herb have I given you all things. But flesh with the life thereof, which is the blood thereof, shall ye not eat.' I am aware that certain advocates of a vegetable diet take a different view of this, and some other passages of Scripture, and believe that the flesh of animals for human food is still prohibited. I am inclined, however, to admit the full force of such passages; and to acknowledge that man is not, since the flood, restricted by the law of God from partaking of animal food. It was, doubtless, foreseen by the Omniscient that mankind would, in obedience to his command, 'be fruitful and multiply, and replenish the earth;' that they would, in consequence of emigration and various other causes, frequently be placed in such circumstances that fruits, roots, rice, wheat, and other grains, could not be procured. Man, however, is admirably organized, as to be capable of inhabiting every clime; he is not only to 'replenish the earth,' but to 'subdue it;'—to bring it into a state of universal cultivation, and to 'have dominion over everything that moveth upon the earth. In accomplishing these divine purposes, he would frequently be exposed to great privations; for as grass, and other inferior herbage, affording support to herbivorous animals only, are the sole productions of cold climates, man would be under the necessity of becoming carnivorous, until art and industry had rendered the soil of any newly inhabited parts of the earth fruitful and productive. Plutarch, in reference to this, observes:—'And truly, as for those people who first ventured upon the eating of flesh, it is very probable, that the sole reason of their doing so was scarcity and want of other food.' If, then, the original restriction as to food had not been relaxed, man, in obeying the impulses of nature to preserve his own life, would have broken the law of God; but the moral and physical laws of an all-wise Creator are always in strict conformity with each other. Man was to increase, multiply, and replenish the earth, and subdue it:—to have dominion over all animals, in all climates: it is therefore consistent with all correct views of divine government to expect, that he would receive such an organization from the Divine hand, as would render him capable of subsisting on the greatest variety of food,—the productions of all climates; with full liberty to use all such as he might be induced, by his instincts or reasoning faculties, to adopt, as circumstances might require. The flesh of animals, therefore, could not be excepted; for, in many climates, no other food could be procured. But we are not thence to infer, that the digestive organs of man are the best adapted to an animal or even a mixed diet (the contrary of which I hope to prove hereafter); nor are we to conclude, that because animal food is permitted to man, therefore a more wholesome diet cannot be employed in situations where it can be procured. We must be careful to distinguish between divine permission, and divine command: there is a kind of relative fitness in morals as well as in physics; and what may be convenient and lawful in certain circumstances, may be highly improper in others, or under a different dispensation. Without any disparagement to the cause of vegetable diet, therefore, it may be conceded, that animal food was permitted after the deluge, when 'men began to multiply on the face of the earth.' But long after this event, the patriarchs and their descendants confined themselves principally to a vegetable diet; for fruits, honey, milk, butter, bread, and some simple preparations of seeds and mild herbs, were the plain, healthful food of the people for many ages afterwards. On joyous and festive occasions the fatted calf was killed; but their usual diet was derived from the vegetable kingdom, and the produce of their flocks and herbs; and, even to this day, the inhabitants of Syria, Mesopotamia, and other countries, live after the same manner.

"Assaad Yokoob Kayat, a native Syrian, in a speech at Exeter Hall, May 16, 1838, remarked, that he had lately visited Mount Lebanon, where he found the people as large as giants, and very strong and active. They lived almost entirely on dates, and drank only water; and there were many among them one hundred and one hundred and ten years of age. Burckhardt, also, in his remarks on the Bedouins, says:—'Their usual fare (called *ayesh*) consists of flour made into a paste with sour camel's milk. This is their daily and universal dish; and the richest sheikh would think it disgraceful to order his wife to prepare any other dish, merely to please his own palate. The Arabs never indulge in animal food, and other *luxuries*, except on the occasion of some great festival, or on the arrival of a stranger. If the guest be a common person, *bread is baked* and served up with *ayesh;* if the guest be a person of some small consequence, coffee is prepared for him, and also the dish called *behatta* (rice or flour boiled with sweet camel's milk), or that called *fteta* (baked paste, kneaded up thoroughly with butter); but for a man of some rank, a kid or lamb is killed.

"*Vegetables contain all the elements and qualities necessary for the complete nutrition of man.*—Having seen that history and science bear ample testimony to the truth that vegetables *were* the original, and *are* (now as well as in former ages) the natural food of man, the inference that they are also his best food seems unavoidable; but as evidence of a totally different nature from that already produced can be brought to prove the latter, independently of the two former propositions, the whole three may be considered established as clearly and firmly as questions of such a nature admit. First, then, we must inquire, what important purposes food is designed to answer in the human economy; secondly, whether vegetables possess the elements and qualities necessary for answering those purposes; thirdly, we must ascertain whether they are easy of digestion; and lastly, whether they are superior to animal food or a mixed diet for sustaining all the vital processes—for producing the 'mens sana in corpore sano,' in the greatest perfection, and for the longest period. [*Mr. Smith gives in twenty-five pages a very clear account of the* *constitution of vegetable and farinaceous food.*]

"The experiments of Dr. Beaumont and others prove, that when fruits, roots, and farinaceous substances have been well masticated and mixed with saliva, they are easily digested in the healthy human stomach, and answer all the purposes of complete nutrition. A short statement of facts, from Dr. Beaumont's Tables, will confirm these remarks. He informs us, that the following articles were converted into chyme, or digested, in the times mentioned:—

	H.	M.
"Rice, boiled soft	1	0
Apples, sweet and ripe	1	30
Sago, boiled	1	45
Tapioca, Barley, stale Bread, Cabbage, with Vinegar, raw, boiled Milk and Bread, and Milk, cold	2	0
Potatoes, roasted; and Parsnips, boiled	2	0
Baked Custard	2	45
Apple Dumpling	3	0
Bread-corn, baked; and Carrots boiled	3	15
Potatoes and Turnips, boiled; Butter and Cheese	3	30
Tripe and Pig's Feet	1	0
Venison, broiled	1	35
Cod Fish, boiled; and Eggs, raw	2	0
Turkey, Goose, and Lamb	2	30
Eggs, soft-boiled; Beef and Mutton, roast or boiled; and Oysters, raw	3	0
Boiled Pork; stewed Oysters, Eggs, hard-boiled, or fried	3	30
Domestic Fowls and Ducks, roasted	4	0
Wild Fowls; Pork, salted and boiled; Suet	4	30
Veal, roasted; Pork, and salted Beef	5	30

"Our second question is, I think, now sufficiently answered; it being demonstrated, upon the strictest chemical principles, that vegetables do possess the elements and qualities necessary for renewing the decomposed tissues of the body. 'Bulk,' says Dr. Beaumont, 'is nearly as necessary to the articles of diet, as the nutrient principle. They should be so managed, that one will be in proportion to the other. Too highly nutritive diet is probably as fatal to the prolongation of life and health, as that which contains an insufficient quantity of nourishment. It is a matter of common remark among old whale-men, that, during their long voyages, the coarser their bread the better their health. 'I have followed the seas for thirty-five years,' said an intelligent sea-captain to Mr. Graham, 'and been in almost every part of the globe; and have always found that the coarsest pilot-bread, which contained a considerable proportion of bran, is decidedly the healthiest for my men.' 'I am convinced from my own experience,' says another captain, 'that bread made of the unbolted wheat meal is far more wholesome than that made from the best superfine flour;—the latter always tending to produce constipation.' Captain Benjamin Dexter, in the ship *Isis*, belonging to Providence, N. J., arrived from China in December, 1801. He had been about 190 days on the passage. The sea-bread, which constituted the principal article of food of his men, was made of the best superfine flour. He had not been long at sea, before his men began to complain of languor, loss of appetite, and debility: these difficulties continued to increase during the whole voyage; and several of the hands died on the passage of debility and inanition. The ship was obliged to come to anchor about thirty miles below Providence; and such was the debility of the men on board, that they were not able to get the ship under way again; and the owners were under the necessity of sending men down from Providence, to work her up. When she arrived, the owners asked Captain Dexter what was the cause of the sickness of his men. He replied—'The bread was too good.' [*For the adaptation of bread to supply all the constituents of the body, see page 32 of this book.*]

"Pythagoras, one of the most celebrated philosophers of antiquity, is the first we read of as defending a vegetable diet. He not only totally refrained from animal food himself, but strictly prohibited the use of it by his disciples; so that those who abstain from it at the present time are frequently called Pythagoreans. Pythagoras flourished about 500 years before the Christian era. He was a man of immense learning, and extraordinary powers of intellect.

"Zeno the Stoic, Diogenes the Cynic, Plato, Plutarch, Plautus, Proclus, Empedocles, Socion, Quintus Sextus, Apollonius Tyanœus, Porphyry, and numerous others among the ancients, abstained from animal food; and more recently, Haller, Ritson (celebrated for his numerous works and splendid talents), Dr. Cheyne, Dr. Lambe, Mr. Newton (who wrote a work entitled, 'Return to Nature'), Shelley, Dr. Hufeland, Sir Richard Phillips, Professor R. D. Mussey, of Hanover, U.S., Dr. James, of Wisconsin, Dr. Whitlaw, Dr. W. A. Allcott, of Boston, U.S., and many others, have both advocated and personally tried, for many years, a strictly and exclusively vegetable diet. When Boadicea, queen of the Ancient Britons, was about to engage the

Romans in a pitched battle, in the days of Roman degeneracy (A.D. 61), she encouraged her army by an eloquent speech, in which she says, 'The great advantage we have over them is, that they cannot (like us) bear hunger, thirst, heat, or cold. They must have fine bread, wine, and warm houses. To us, every herb and root are food; every juice is our oil, and every stream of water our wine.' 'In those times,' observes Lord Kaimes, 'our fathers were robust both in mind and body; and could bear, without much pain, what would totally overwhelm us.' A considerable proportion of the labourers in various parts of England and Wales, even at the present day, eat but little animal food; and about seventy or eighty years ago, the principal part of the labour in this country was performed by those who seldom or ever tasted flesh-meat. The hardy Scotch, also, are almost exclusively confined in their diet to the productions of the field and garden. 'So late as 1763,' says Mr. McCulloch, 'the slaughter of bullocks for the supply of the public markets was a thing wholly unknown even in Glasgow, though the city had then a population of nearly 30,000!' The Lazzaroni of Naples are a tall, stout, well-formed, robust, and active class of people; and yet subsist chiefly on coarse bread and potatoes; and their drink of luxury is a glass of iced water, slightly acidulated.

"In France, a vegetable diet prevails to a very great extent. M. Dupin informs us, that two-thirds of the French people, to this day, are wholly deprived of animal food? and live on chestnuts, or maize, or potatoes. The peasantry of Norway, Sweden, Russia, Denmark, Poland, Germany, Turkey, Greece, Switzerland, Spain, Portugal, and of almost every other country in Europe, subsist principally, and most of them entirely, on vegetable food. It has been observed, that 'from two-thirds to three-fourths of the whole human family, from the creation of the species to the present moment, have subsisted entirely, or nearly so, on vegetable food; and always when their alimentary supplies of this kind have been abundant and of a good quality, and their habits have been in other respects correct, they have been well nourished and well sustained in all the physiological interests of their nature.'

"Dr. Adam Smith, in his 'Wealth of Nations,' says.—"It may indeed be doubted, whether butcher's-meat is anywhere a necessary of life. Grain and other vegetables, with the help of milk, cheese, and butter, or oil (where butter is not to be had), it is known from experience can, without any butcher's-meat, afford the most plentiful, the most wholesome, the most nourishing, and the most invigorating diet.'

"Mr. W. Fairbairn, of Manchester, in the 'Report on the Sanitary Condition of the Labouring Population of Great Britain,' says:—'I observed, on a late journey to Constantinople, that the boatmen or rowers of the caiques, who are perhaps the first rowers in the world, drink nothing but water; and they drink that profusely during the hot months of the summer. The boatmen and water-carriers of Constantinople are decidedly, in my opinion, the finest men in Europe, as regards their physical development; and they are all water-drinkers: they may take a little sherbet, but in other respects are what we should call in this country "Teetotallers." Their diet is chiefly bread: now and then, a cucumber, with cherries, figs, dates, mulberries, or other fruits which are abundant there; now and then a little fish: occasionally, I believe, they eat the flesh of goats; but I never saw them eating any other than the diet I have described. They eat about the same amount as European workmen; but, if anything, are more moderate as respects quantity.'

"Sir Francis Head informs us, that immense loads are carried by the South American miners, though fed entirely on grain and pulse. 'It is usual for the copper-miners of Central Chili to carry loads of ore of 200lbs. weight up eighty perpendicular yards, twelve times a day. When they reach the mouth of the pit, they are in a state of apparent fearful exhaustion, covered with perspiration, their chests heaving; yet after briefly resting, they descend again. Their diet is entirely vegetable; breakfast consists of sixteen figs and two small loaves of bread; dinner, boiled beans; supper, roasted wheat grain. They scarcely ever taste meat; yet on this simple diet they perform a labour that would almost kill many men.' 'The diet of the Afghan consists of bread, curdled milk, and water. He lives in a climate which often produces in one day extreme heat and cold: he will undergo as much fatigue, and exert as much strength, as the porters of London, who are fed on flesh and ale; neither is he subject to their acute and obstinate disorders.' An officer of a frigate who had been at the Sandwich Islands has declared, that our sailors stood no chance in boxing with the natives, who fight precisely in the English manner. A quarter-master, a very stout man, and a skilful boxer, indignant at seeing his companions knocked about with so little ceremony, determined to try a round or two with one of the stoutest of the natives, although strongly dissuaded from the attempt by his officers. The blood of the native islander being warmed by the opposition of a few minutes, he broke through all the guards of his antagonist, seized him by the thigh and shoulder, threw him up, and held him with extended arms over his head for a minute, in token of triumph, and then dashed him on the deck with such violence as to fracture his skull. The gentleman added, that he never saw men apparently possessed of such muscular strength. Our stoutest sailors appeared mere shrimps compared with them. Their mode of life, constantly in vigorous action in the open air, and undebilitated by the use of stimulating food or drink, may be considered as a perpetual state of training. Examples might be multiplied, from all parts of the world, of people living entirely upon vegetable food, and enjoying perfect health and bodily vigour; but perhaps none are more striking than those we have in close proximity to us. 'The chairmen, porters, and coalheavers, the strongest men in the British dominions, are said to be, the greater part of them, from the lowest rank of people in Ireland, which are generally fed with the potato. No food can afford a more decisive proof of its nourishing quality, or of its being peculiarly suitable to the health of the human constitution.' This remark has been amply confirmed by the recent experiments of Professor Forbes, on the weight, height, and strength of above eight hundred individuals;—his tables clearly showing, that the Irish are more developed than the Scotch at a given age, and the English less.

"Mr. Brindley, a celebrated canal engineer in this country, informs us, that in the various works in which he has been engaged,—where the workmen, being paid by the piece, each exerted himself to earn as much as possible,—men from the north of Lancashire and Yorkshire, who adhered to their customary diet of oat-cake and hasty pudding, with water for their drink, sustained more labour, and made greater wages, than those who lived on bread, cheese, bacon, and beer,—the general diet of labourers in the South. Diseases of the liver are much more common where a flesh diet abounds. Dr. Copland informs us that 'eating largely or frequently, especially of animal, rich, and highly seasoned food,—stimulating the appetite by a variety of incongruous dishes and sauces, and spices and wines, particularly in warm countries and seasons, are most influential causes of these disorders.' We have known various persons who have been delivered from painful and obstinate disorders by giving up the use of animal food entirely; and others in whom disorders of the nervous system and the chest had been very much relieved by the same procedure.

"Dr. Caleb Bannister, of Phelps (N. Y.), whose ancestors, it appears, had all died of hereditary consumption, states as follows:—'At the age of twenty, I began to be afflicted with pain in different parts of the thorax, and other premonitory symptoms of phthisis pulmonalis. Having a severe attack of ague and fever, all my consumptive symptoms became greatly aggravated; the pain was shifting, sometimes between the shoulders, sometimes in the side or breast, &c.' After enumerating various other symptoms (such as irritable pulse &c.), and stating that his life was despaired of, he says:—'I was induced to try a milk-diet, and succeeded in regaining my health; so that, for twenty-four years, I have been entirely free from any symptom of phthisis.

"'It will not be disputed,' says Dr. Lambe, 'that, for consumptive symptoms, a vegetable diet, or at least a vegetable and milk diet, is the most proper.' Dr. Buchan again observes:—'When there is a tendency to consumption in the young, it should be counteracted by strictly adhering to a diet of the farinacea and ripe fruits. Animal food and fermented liquors ought to be rigidly prohibited; even milk often proves too nutritious.' Scrofula, cancer, scurvy, epilepsy, dysentery, inflammation, ulcers, &c., may be included among the diseases which are greatly relieved, if not cured, by vegetable diet; as the ensuing facts attest. Dr. N. J. Knight, of Truro, records the following case:—'Mrs. A., infected with scrofula of the left breast, and in a state of ulceration, applied to me two years ago. The ulcer was then the size of a half-dollar, and discharged a considerable quantity of imperfect pus. The axillary glands were much enlarged; and, doubting the practicability of operating with the knife in such cases, I told her the danger of her disease; and ordered her to subsist upon bread and milk, and some fruit, drink water, and keep the body of as uniform temperature as possible. I ordered the sore to be kept clean, by ablutions of tepid water. In less than three months the ulcer was healed, and her general health much improved. The axillary glands are still enlarged, though less so than formerly. She still lives simply, and enjoys good health; but she tells me if she tastes flesh meat, it produces a twingeing in the breast. A physician, in answer to Dr. North, states that he had been subject to severe attacks of epilepsy; but having maintained a total abstinence from flesh, fish, and fowl, for two years and a half he had been entirely free from any attack.

"Dr. Cheyne relates a remarkable cure of epilepsy, in the case of Dr. Taylor; who was, for a long time, dreadfully afflicted with epileptic fits. He tried the effects of medicine, and consulted all the most eminent of his brethren of the medical profession in and about London; but obtained no relief. At last, he was obliged to follow the advice of Dr. Sydenham, whose works he had studied. He first discontinued the use of all fermented and distilled liquors; then, finding his fits become less frequent and less violent, he gave up all animal food, and confined himself entirely to cow's milk. In the course of a year or two he was perfectly cured; and, for seventeen years, enjoyed as good health as human nature is capable of. But the most remarkable cure of this kind is recorded in 'The Lancet' for May 14, 1842, by Mr. S. Rowbotham, surgeon, of Stockport. The son of a Mr. Fielding, of that town, about three years old, had been ill eighteen months. He was covered from head to foot with ulcers; his eyes, nose, ears, mouth, and, in fact, his whole head and face, were involved in one complete mass of fetid running sores and ulcers; and the lower part of his body was equally bad,—so that his little thighs seemed nearly separating from his body. For more than twelve months, he had been quite blind; and had never been able to sit down, even on a pillow; but stood upon his foot, and leaned with his elbow upon the nurse,—except at times, when he was able to kneel on a pillow: he had scarcely been able to lie in bed for the same period. Eight of the most eminent medical men had given him up as incurable; and some of them declared, that no known mortal power could even *improve* his condition, much less effect a cure. 'From certain views which I held on the origin of disease,' says Mr. Rowbotham, 'I was induced to recommend a diet consisting almost entirely of ripe fruits and honey, or sugar and treacle. The child commenced this diet on the 13th of September, 1841: he had stewed fruits, mixed with sugar or honey, to all his meals; and was allowed frequently to eat grapes, cherries, plums, apples, pears, and such other fruits as could be obtained. On the 16th, the sores on his back were beginning to disappear; on the 23rd, he was very sensibly improved; on the 30th, one-half of his face was clear; the lower parts of his body were much better; and he could sit in a chair, and lie comfortably in bed. He continued daily to improve, till at last his eyes opened; but they were at first very weak, and he could scarcely see anything: his sight, however, gradually improved. On the first of January, 1842, not a single ulcer remained on his body: the skin became remarkably clear and fair, and the features, which, for twelve months, had been in such a state that it was impossible to do more than guess at the position of his nose and eyes, were restored to their wonted appearance.'

"Adam Smith, in his 'Wealth of Nations,' informs us, that the most beautiful women in the British dominions are said to be, the greater part of them, from the lower rank of people in Ireland, who are generally fed with potatoes. The peasantry of Lancashire and Cheshire, also, who live principally on potatoes and buttermilk, are celebrated as the handsomest race in England.

"Mr. Shillitoe, of Tottenham,—a member of the Society of Friends,—when about forty-five years of age, had suffered from ill health during many years; and was restored by adopting a vegetable diet, and water for drink. He lived till nearly ninety years of age; and at eighty could walk, with ease, from Tottenham to London (six miles) and back again. He gives the following account of himself:—'It is now thirty years since I ate fish, flesh, or fowl; or took fermented liquor of any kind whatever. I find, from continued experience, that abstinence is the best medicine. I do not meddle with fermented liquors of any kind, even as medicine. I find I am capable of doing better without them.'"

ALL PRIZE CATTLE DISEASED.—*From the Vegetarian Messenger, price 2d. Pitman, London.* "Once again we have a striking communication made to the public on the subject of the disease originated in the process of fattening animals. Scientific and other observant men have frequently thrown out that the animal is 'fattened' only at the expense of its health, and that as there are no fat animals in a state of nature, so the processes resorted to to make up the prize-fed monstrosities of Smithfield are immeasurably against the interests of the consumer of the flesh of animals.

"'A question of much interest to the breeders of cattle, judges at exhibitions of stock, and the public, has been raised by Mr. GANT, a London surgeon. It appears that he was struck with the appearance of some of the prize animals at the late Smithfield Cattle Show, several of which also took honours at Birmingham, followed them to the slaughter-house, and, as the result of dissection and microscopical observations, discovered that the hearts and proper muscular structure, the nutritious parts, were degenerated into unhealthy fat and oil globules, and that the lungs were the seat of extensively deposited tubercular disease, of a similar structure to that form of deposit usually found in scrofulous and phthisical subjects. This discovery, although not made for the first time, puts the matter in a light so serious as to command attention. It would seem also to point to the necessity for a change in the standard of what judges generally consider excellence.'

"We beg to call attention to the more complete explication of the above, as found in our present number. Whitlaw and others long since declared similar facts; but now, with the stamp of greater authority, we may reasonably hope that Mr. Gant's researches will be made valuable to the public."

THE ARCTIC ARGUMENT AGAINST VEGETARIANISM.—"It is often said, in substance, 'Vegetarianism may be very well for a man living in India, Spain, or even Britain, but it would never do for the dweller in the Arctic regions. A man must there eat flesh, and fat with the flesh, or he would certainly starve. I am sure you will admit your arguments for a Vegetarian diet break down whenever they cross the Arctic circle. Your candour hitherto makes me sure of that.' At the risk of being thought uncandid, we must decline to make the admission. Many persons will follow our arguments, and concur in the statements that man's teeth were not made to eat flesh, nor his stomach to digest it, and that his feelings in an undepraved state revolt from the infliction of pain or death upon any of God's creatures. Now, this granted, man is a Vegetarian. If then he is placed within the Arctic zone, where neither fruit nor grain is cultivated or will grow, is it not evident that he is in circumstances violently at variance with his created nature? Having thus far opposed us, some persons turn round and say, 'Now, live naturally, if you can.' They might with as much show of reason taunt a sick man with his inability to eat the same dinner that he did when in health; or turn a monkey, formed to live on trees, into a desolate plain, and wonder what had become of its lively agility; or place a man in a stinking hovel in St. Giles's, and express surprise that he should crave for gin and other stimulants. We can only expect men and animals to be true to their nature when they live in circumstances in accordance with that nature. That normal man was never intended to live in the polar regions, is proved by the common sense which prevents his colonization of their howling wastes. It is testified in the frozen blood, the death, and the mutilation of many a brave Arctic explorer. Time in those regions is spent in a continual and hazardous struggle for mere existence, leaving little or no margin for the rightful uses and pleasures of life. Truly, man has no reason or call to live in those awful wastes. And existence therein must result in as many violations of the laws of his nature as would life under the hot sun in the burning sands of Sahara. But it will be said, 'You forget the existence of the Esquimaux and the Laplanders.' No, we do not; and we think reference to them only confirms our argument. Their life, judged from a truly civilized point of view, is a most unnatural and nasty one. Wrapped in cumbrous furs, and unable alike from want of water and intolerable cold to keep the body in that state of cleanliness which comfort and health demand, unable, from ignorance and climate together, to raise the grain and fruit which are the proper food of man, and therefore obliged to submit to the accidents of chance supplies, he starves at one time, and guzzles enormous quantities of blubber to sustain the heat and meet the wants of the body at another. This, and the fact that from the severe cold they are compelled to huddle in close and unventilated huts, makes their life, in the very nature of things, disgusting, and, to a properly cultivated sense, inhuman. The Esquimaux may like it, and think any other far inferior, but we can only say we know better. The most unnatural and disgusting conditions become first tolerable, and then agreeable by custom, but they cannot for that cease to be unhappy departures from high principle and normal habits, and in themselves wholly abominable. Such a result is only a picture of poor human nature turned from its noble possibilities and its birthright with angels, and degraded in conformity and liking to the basest surrounding circumstances. The Icelanders are beyond doubt the best specimens of men living in, or on the borders of, unnatural climatic conditions. Their island, about one-third larger than Ireland, only sustains some 60,000 inhabitants, and those on some favoured tracts along the sea margin. A fine race of men, their intelligence, enterprise, and influence are sadly narrowed by the position of their country. In a milder clime they might have been a great nation, another England or New England, a strength and blessing to the world. Yet we see what their present unnatural position and consequent diet involves, in the results to health; that blessing, the basis and receptacle of all others. The following account of their food and its results is given by Lord Dufferin:—

“‘The ordinary food of a well-to-do Icelandic family consists of dried fish, butter, sour whey kept till fermentation takes place, curds, and skier—a very peculiar cheese, unlike any I ever tasted, a little mutton, and rye-bread. As might be expected, this meagre fare is not very conducive to health; scurvy, leprosy, elephantiasis, and all cutaneous disorders, are very common, while the practice of mothers to leave off nursing their children at the end of three days, feeding them with cow's milk instead, results in a frightful mortality among the babies.' But men may live, and do live, in high latitudes, and climates severe enough to test human endurance, on food entirely derived from the vegetable kingdom. The Russians are practical Vegetarians. The hosts of workmen employed on the great public works of the empire subsist in summer on cucumbers and rye-bread; and in winter the cucumbers are salted and eked out with chestnuts. The prowess of the Russian soldier England and France have had melancholy occasion to test, and the *Times* correspondent in the Crimea was amazed to find that desperate wounds, which would have been the death of a flesh-eating Englishman or Frenchman, *did not* kill the Russian, whose food was coarse black bread, with oil and salt. And the case is the same with the Russian peasantry, from whence workman and soldier are drawn. Their general food is coarse black bread and garlic. A finer people physically, all unite to say, there is not. In a climate severely cold they enjoy health and vigour, and, as one of the fairest tests of national well-being, they rapidly increase in numbers. Spite of national jealousy, Russia is on the highway to greatness, and the future will, I have no doubt, find it one of the most useful and influential powers among the kingdoms of the earth; and while we cannot but profit by Russian prosperity and enlightenment, there is surely room enough in this wide world for the development of all without either trenching on the domains of the other. The Norwegian winter, as all know, is a severe one; but the Norwegians, like the Russians, are practical Vegetarians. They do eat flesh when they can get it, but that is but rarely, and is then eaten as a luxury, much as plum-pudding is by poor people in England. Yet the Norwegians, on their oatmeal and rye-meal, are robust and healthy, tall and good-looking, and in no European nation are there more instances of extreme longevity. One fact, if reliable, is as good as twenty in proving our point, and facts might be adduced to tedium to show that the heat of the human body can be sustained in severe cold on the products of the vegetable kingdom, especially cereals.

“In Siberia no exiles in that wintry region endure the cold better than those who have been accustomed to a simple vegetable diet, and the Hudson's Bay Company have discovered that 2½ lbs. of maize meal per day sustains the warmth and energy of their servants quite as well as the 8 lbs. of fat flesh-meat formerly used, whilst the men themselves prefer it. Facts like these dispose of the common argument constantly brought against Vegetarians, about their system being impossible in cold climates. But supposing it were as true as it is false that men could not live in severe cold without flesh or fat, why should that hinder any one from adopting a Vegetarian diet in the mild climate of England?—a diet recommending itself by its economy to the prudence, its pleasantness to the palate, and its innocent attainment to the benevolence and all the best feelings of man's nature. Why should any one make a supposed difficulty in the Arctic zone restrain him from a clear duty in Manchester or London? As Mr. Simpson in a lecture once pertinently asked, ‘Will you defer your acceptance of Christianity until every rascal and every heathen has found it convenient to acknowledge its divine claims?’ Do let us do right ourselves. The right is ever full of happiness and blessing. We grieve for the many who wander and get wrong, but we cannot help them out of their misery by adhering to the cause of their misery—the error and the wrong. Let us obey the sound principles of normal life ourselves, and by our happy example we shall most effectually help others.”

The following testimonial and statement of disease are specimens of many communications we receive from time to time. The writer, a merchant, age about 54, stout, and florid complexion, had been subject to rheumatic attacks, and also of the head. He had varicose veins in his legs, which were sanguine; and for the relief of these maladies, he had applied to the best medical men in vain. Their physic, &c., could only aggravate his complaints. My establishment being closed at the time, he applied to me: I put him under one of my bathmen, with instructions for treatment, which were entirely successful and made a new man of him. The case he requests advice for is also a sample of many who come to us, and are restored to health when all other means have failed, and all the curious and inventive appliances of Allopathy have left the body and mind a wreck. He writes:—

"I was very glad to learn that you have so many arrivals at Matlock Bank. The large outlay of capital, and the great labour you have bestowed upon the place, will, I trust, be repaid to you in a commercial point of view, as well as in the mental satisfaction you and Mrs. Smedley must derive from the result of your labours on the minds and bodily health of so many invalids. I passed a very happy time at Matlock on the whole, and could have been very well contented to have taken up my abode there. My health is now excellent, and I have to thank you very sincerely for your kind reception of me, and the encouragement you gave me when my mind was in a very desponding state. I have to thank the water cure not only for my present good health, under God's blessing, but for certain good habits of life, such as temperance, early rising, and a more conscientious and scrupulous regard to my duties, socially, and to God. It is to Him to whom I have been brought into more holy communion, and to Him be all the praise of my restoration to health. May He guide me to make good use of it, to His honour and glory!

"Now, if it will not be troubling you too much, I have a friend here who is a martyr to nervous dyspepsia or indigestion, and has been for three years. Any excitement or annoyance, or wrong food, irritates his stomach nerves; his head becomes very painfully affected; he is now partially deaf, and the noise in his head at times has been so bad that he has fancied he could hear a band of music, and could distinguish every instrument. Upon one occasion, he was travelling by railway, and actually put his head out of the window to see where the music came from—he could hear a full band so distinctly. It is very painful to see him suffering so much, and as I have already said, if not troubling you too much, I should be very glad to have your opinion of his case, and proper treatment necessary, and whether you think any good can be done, for his head particularly, by the water cure. I know you will give me a candid opinion."

Severe cold water treatment produces quite as disastrous effects as physic, bleeding, &c. A case I had under my charge for the cure of chronic disease of the stomach, after very careful treatment for several months, gained seven pounds in weight, and was evidently on the way to recovery. Winter was coming on, and I advised him to go into the south for the warmer climate, taking a few baths, keeping out in the open air as much as possible, and return in spring to complete his cure. He, however, was persuaded to try the cold water treatment at another establishment, and after five months' practice the result is shown by his statement, as follows:—The doctor told him he would be able to return home within two months and resume his duties. This was the 7th of February. Treatment, on rising, a cold sitz, five minutes, and pail douche of one or two minutes—that is, pails of cold water thrown over the shoulders and back; noon and afternoon, cold, running sitz for ten minutes; wear compress all day, except at dinner; breakfast, cold milk and water, with toasted bread in it—the same at seven p.m.; dinner, two p.m., lean meat, well done, with rice and bread, and nothing else. 28th February, after three weeks' treatment, says, "decidedly better in health, digestion considerably improved; treatment same, only douche at noon instead of sitz; not increasing in weight; decidedly stronger, and in better spirits. April 1st—continue to improve; wet pack every morning, one hour, for ten days; then, for next fortnight, spirit lamp; one day wet pack; next, pail douche and running sitz continued to fifteen minutes instead of ten, which find very trying."

Now comes the reaction, the vitality being used up. "After ten days, only pail douche on rising, and fifteen minutes running sitz in day; very trying this severe weather, and sometimes makes one feel very sickly." April 29th, three months from commencement.—"Troubled very much with diarrhœa; can only write a few brief lines." May 11th.—"Should have written to you sooner, had I not felt so languid and poorly. I am decidedly thinner and weaker, also very nervous; now taking two pail douches in the morning, and 90 degrees shallow for ten minutes, at five p.m., and nothing more." May 18th.—"Much the same, and same in treatment, with the addition of having a mustard poultice on pit of stomach every other night at bedtime, twenty to forty minutes; equal parts of flour and mustard. I am afraid I cannot stop much longer." June 2nd.—"Discontinued baths, except wash over in morning; bowels still continue very loose, and I have a continual feeling of purging in them; and during the last fortnight have lost four pounds in weight; appetite very moderate indeed. Doctor tells me I am all right in respect to digestion, and a change would do me good, but I do not like leaving in such a weak state." Doctor evidently disappointed in the case, which he stated positively would have been cured in six weeks, now four and a half months since commencement, and patient lighter and in worse condition; and, in August, still in a very weak state. Severe cold-water treatment produces internal crisis, and is both trying and dangerous to the constitution. Our mild treatment brings crisis on the surface, and never interferes with the digestive organs except in improving their powers.

Bite on the hand by an American rat.—A labourer, while unloading an American ship, was bitten in the hand betwixt the forefinger and thumb by a large rat; did nothing to it till night, when his wife put on a bread poultice, which he kept on while at work for three days. When the pain was gone, a fortnight afterwards the hand began to swell, and became very painful; went to the hospital, where it was lanced; some black blood and a little yellow matter came out. The surgeon ordered the hand and arm to be fomented with hot water, and apply linseed poultice night and day; went on with this a week; swelling went down, and pain; in another week the swelling and pain returned, when the man came under our care. For want of the treatment being carried farther to produce a crisis and discharge of matter out of the whole arm, and more general treatment to renovate the general health, the system could not throw the poison off. Under our treatment, the lumps which had formed in the muscles of the arm, and which would soon have become abscesses, were absorbed in one week, and a good crisis got out over all the arm; all pain ceased, and the man is now entirely restored.

Case of injury to the knee.—A basket-maker, age 20, employed in his occupation, using the sharp-pointed knife, in making baskets, run it into his knee, and let out a quantity of the synovial fluid from the joint. A physician, practising as a surgeon, was called in; fomentation, ointment, and bandages, were applied; the young man lay in bed five weeks, and the doctor told him he would be a cripple for life, and would not again have the use of the knee-joint. Having employed the father of the young man, and hearing of the case, I sent a carriage for him to my free hospital. The knee was immediately steamed, and hot soap and water applied, then all the limb cased, including the foot, in spongio piline, damped with warm water, and dry flannel wrapper over. The object of this moist warmth was to raise the vitality of the limb; and we knew if this could be accomplished, nature would soon set up a curative process, and we were not disappointed; for by repetition of treatment to the limb and to the whole frame, as follows, the chronic inflammation was soon subdued, and the injured tissue and diseased matter thrown off by crisis from the knee and whole of the leg. The young man has now the perfect use of it, and has for some time worked at his occupation as formerly. Used baths No. 35½ or 55, or 2, covering the injured limb from the cold water, 42, 13, and 11, 115, 91, 141, 144, 216, 148, 153, 194, 170, 199, 200, 206, 207, 208, or 210. These baths varied each day, being careful not to overpower the strength of the body by too much treatment.

Sprains.—Whilst pain continues, attend to No. 58 bath list three times a day, and 214. After pain is gone and the joint is only *weak*, then attend to No. 17 three times a day; and instead of No. 214 apply a piece of spongio piline on the part, and dry flannel bandages around affected limb to stimulate circulation in the whole limb. If any crisis appears during the above, omit the treatment and apply 173½ till it is over; 150½ will also be very useful for crisis. When the crisis (*rash or boils*) is gone off, and the part only feels weak, rub cod-liver oil on twice a day with the hand, and keep the damped spongio piline on for some time; this also promotes circulation and vitality in the part. If the above does not relieve, use No. 221.

Bowel Pack.—Have two large "foment pads," well squeezed out of strong hot mustard and water; put one on front of body and one on back; bind them well on with blanket doubled in four, lengthways; place a macintosh sheet same way over all, stay in till the patient sweats; then have an empty shallow bath, and place in it a flat tin full of hot water just comfortable to stand upon, have two attendants with two vessels of warm soap and water and two sponges; let each sponge down the patient well and quickly, and also pour 80 deg. water over head; then dry rub as 19½. The above "Pack" leaves every limb at liberty, but 153½ should be kept at feet, and the head packed as article Head Pack states.

Case B.—On rising, No. 72, and redamp compress; forenoon, 21; afternoon, 108, and if feet are cold during operation, put them in hot mustard and water; bedtime, put mustard poultice on windpipe, and on weak part of chest till red; attend to 76, 79, 180, 199, and to 200, very carefully reclining. Before rising, have an egg sent up to bed, in a little warm water; and in all these cases do not rise early if inclined to rest.

Case C; aged 20.—Lower than the above, and apparently so far gone in consumption we did not expect his recovery; under the following treatment he soon rallied, and is now well.

Case D. Bad symptoms of lung disease, commonly called consumption.—A gentleman, aged 26, spare frame, had been a good deal confined in an office, and in a northern climate. The following treatment in April, weather rather cold, with east and north winds. In a few weeks rallied greatly, and returned to business, and has since gone on well. April 29th, 1859.—On rising, 22, alternating with 124, done according to 126; forenoon, 132 and 158, whilst reclining as 76; afternoon, 50, and when nearly dressed, 107; bedtime, 73, and 172, and 195. Attend regularly to 180, 207, 212, 213, 210, 196: all these numbers according to the list. Whenever any pain in head, just sponge it with tepid water, and then wear a flannel cap for an hour after. When you find the 180 too *hot* or too heavy, then wear 179, wear a flannel one at night, and sleep in woollen altogether; and if temperature of bedroom is not the same as parlour, then wear respirator till you are warm in bed. Be out in the air very frequently, but not for long, and only walking slowly. Expand your chest as much as possible by *gentle* exercises of the arms, and also *inspire* and *respire* once or twice a-day, increasing the movements gradually each day. Put a mustard poultice till red on the weakened part of chest occasionally.

Case E. Consumption.—A young man, aged 20, tolerably good natural constitution, but with overwork and cold brought on pain in chest, expectoration, emaciation. Treatment.—July 4th.—On rising, only damp compress and 212; forenoon, 160 and 162, keeping a warm pad to bowels, and the rest of the body well wrapped in blanket; afternoon, same as forenoon; when in bed, mustard poultice on liver, and repeat it as often as can be borne; 180, 188, slightly sprinkled with hot water. This was very efficacious, and as the patient got stronger, more active treatment given, and the result was perfect restoration to robust health. 206, 207, 208, 77, as long as cough continues. use 79 every night; wear 193, 195, take 131, before getting into bed.

Case F; aged 17.—On rising, 12; forenoon, pad wrung out of 90 degrees put on chest ten minutes, and underneath the pad a mustard plaister; use 153. Wipe mustard off with dry cloth or paper, and have compress dry for an hour or two; then damp the compress with hot water; 180, 206, 207, 208, every night 79, if throat sore at all; afternoon, 132 and 158, whilst laying in, 77; 13, 10, twice per week, 90 degrees; 193, 195, and 131 before getting into bed.

G. Extreme loss of vitality.—A gentleman, aged 40, overworked, slight frame. On rising, 128; forenoon, 141, keeping mustard poultices on soles of feet during the time; afternoon as forenoon, only lay a mustard poultice over stomach till part is red; 78, 170, 153, 207. Every night wash the bowels over with hot soap and water, and then rub in a little cod-liver oil with hand, and put a little crisis linen under the spongio for night. Once a week have 35 When the stomach is too tender for mustard, then have 70. Diet.—A raw egg before rising. Breakfast.—A little Scotch meal porridge and cream; and then white bread and butter, and a glass of cold water. A cracknel biscuit and a glass of ice-cream in forenoon. Dinner, 209. Tea as breakfast. Cracknel biscuit and glass of water, taken by sips, for supper, or at any time of day needed. Recline, as 76, as much of the day as possible; alternate week, on rising, 14, and 24, and 106; nothing more.

The Turkish Bath is coming much into use in England and Ireland; but from the very powerful effects which can be produced by it, and the inconsiderate manner in which it is often used, there will be many permanently injured by its use. It is entirely opposed to all sound principles of knowledge of the functions of the human frame, to suppose individuals with such differences of constitution and temperament can alike, and with safety, go into a room heated to 140 or 180 degrees. Several deaths have been recorded from the use of this bath, and I know several who have been seriously injured by the repeated use of such high temperature. Our sweating bath, a modification of the Turkish bath, we find extremely beneficial in chronic rheumatism, in skin diseases, and in a morbid state of the system, and especially in modifying crisis cases, and hastening the cure, but we do not use the high temperature, nor allow the patient to remain in longer than is necessary for a good perspiration, and after, instead of allowing the body to remain relaxed in the cooling-room, we use our cold or tepid sponging sitz bath or shallow; the patient dresses, and gets out into the air, to brace the system up again by breathing the oxygen of the open air. It is impossible a person can go into a high temperature in a room without some degree of pressure on the brain; and there the blood-vessels have not room to expand as in other parts of the body; the consequence of pressure continued is a relaxed muscular nervous power of the blood-vessels, and this state of relaxation is farther prolonged by the person in the ordinary Turkish bath remaining in the hot room or in other rooms in the building for such a considerable time without fresh air. The head should be sponged with cold water, and cold water taken by dips while in the bath, and good hot soaping while in hot room. We heat the room by steam pipes, and bring cold air in instead of heated air from flues, which makes a totally different state of atmosphere from the oppressive sulphurous air in most Turkish baths.

FROM DR. GOODMAN'S "NERVOUS ORIGIN OF DISEASE." (Houlston, Paternoster-row, London.) "*Conditions of nerve in disease.*—We have, therefore, the *following positive and known conditions of nerve which have been discovered to exist both in the dead and living animal,* as specially evinced by the experiments of Matteuci, and as differing from normal or healthy excitability. 1. Increased excitability, or excitation. 2. Irritation, or morbid excitability. 3. Decreased excitability. 4. Exhaustion. 5. Complete destruction of excitability. And to these may be added, as discovered in any individual case. 6. (*a*) Any of the foregoing conditions attended with vascular fulness, plethora, or oppression; (*b*) Attended with vascular depletion or anœmia; (*c*) Attended by generally depraved nutrition, secretion, excretion, &c. There appears to be a marked distinction between excitability and irritation. The former is often natural, is never attended with pain, or uneasiness, but is frequently pleasurable; the latter is always morbid, never pleasurable, generally attended with uncomfortable, and frequently painful, feelings. In the animal economy, there appears to exist a direct antagonistic action exerted between nerve and blood. Where these are equally adjusted in quantity and development, and accurately balanced, there appears to be a neutral point of influence which may be termed 'healthy equilibrium.' But let *nerve preponderate* either in congenital development, or in the decrease of the mass of blood by hæmorrhage, diarrhœa, profuse suppuration, or any other morbid discharge undermining and diminishing this nutritious current of life, and nervous irritation very rapidly ensues, producing, in many instances, nervous fever, intense cerebral excitement, simulated inflammations of a most violent character, and, in some cases, delirium; and we have seen mania itself continuing for months, with no other apparent cause. On the other hand, let the animal department be fed up; let plethora prevail; let the mass of nutritious blood be increased to a high degree, and the nervous system, after suffering from excitement for a given period, becomes the subject of mechanical pressure by this fluid. Gradually as this condition increases, the augmented excitability gives way to oppression of the brain, producing indistinctness of ideas, perverted vision, and other senses, incapacity for thought, and bluntedness of mind and sensation. By and by symptoms premonitory of tendency to fatal pressure ensue, such as confusion of thought, loss of memory, continual drowsiness, and sudden dizziness, which occasions proneness to fall. The spinal marrow suffers, and inability to perform some accustomed action ensues, or probably temporary paralysis of some part of the body; and as the organ of the mind becomes more and more oppressed (if a sudden stroke do not render the disease fatal before this period), there is a degree of general nerve irritation, with implication of the ganglionic centres gradually developed, and reflected upon the already suffering brain, evinced by a painful state of irritability of temper and irascibility, nervous terror, and sense of unaccountable apprehension and insecurity, and fear of being left alone, &c.,—symptoms which loudly proclaim the perilous storm which is impending, the approach of a violent apoplectic seizure, which may prove immediately fatal, or terminate in the pitiable imbecility and childlike helplessness of paralysis.

"Congenital or hereditary *excitability* probably occurs in those individuals *naturally* in whom the nervous fibre and centres are largely predominant at birth, or in whom, at least, an increased excitability of the nervous system naturally prevails. Such persons are generally of a sanguine temperament—of considerable acuteness and quickness of mental power—of great vivacity of mind; and cheerfulness of disposition. Moreover, they possess ready irascibility, flights of imagination, enthusiasm, rapid muscular movements; accomplish occasionally great feats of enterprise, and produce sometimes extraordinary achievements by a sudden dash of genius. But the moving force is impulse, and not sustaining power, and their ammunition is rapidly expended. Such individuals are frequently, especially females, liable to spasmodic affections of the voluntary muscles, spasms, twitchings, and convulsive movements; and prone to sudden laughter or tears, sobbing, and all other usual accompaniments of the hysterical character. *Irritation* appears to be a still more intense and morbid form of nervous excitability. Besides the ordinary causes of disease, cold, damp, heat, mechanical lesions, &c., this form of nerve affection is also the result of mental impressions; late hours; exciting pleasures; the rack of incessant visiting; the passions and emotions of the mind; excessive study; irregular habits; rapid locomotion; the frequent necessity for haste and hurry to meet expected trains; hurry and vexation of business, &c.; the urgency of calls specially appertaining to the medical profession; anxiety for popularity; and public addresses given by persons of an excitable or nervous temperament; protracted and intense state of expectancy; anxiety, care, losses, speculations, &c., which form a fearful source of disease in this nineteenth century. We may also enumerate, as the third class of causes, those which operate through the digestive organs, as improper, irritating, a poisonous food; ardent spirits, and fermented liquors; strong tea and coffee; over-eating, gluttony in living; poisonous medicines, as mercury and other irritating chemicals, &c., which all tend to produce this condition of nerve. To these a fourth class may be added, such as spiculæ of bone, tumours, tubercles, and other mechanical irritants, which may penetrate, or otherwise injure, any given portion of the nervous system. A further degree of nerve irritation is witnessed in the result of extensive burns and scalds, most severe lacerations, crushes, and other lesions; the introduction of morbid matter into the constitution; the bite of rabid animals inducing hydrophobia; the occasional shock, and extensive mischief occasionally following puerpural confinement; or in the peculiar states of constitution, described by Mr. Travers as cases of 'constitutional irritation,' occurring in persons without stamina, in gin-drinkers, débauchées, and artizans of a large town, and a vitiated atmosphere; in all cases, indeed, where, from excessive irritation, depraved habit, or vitiated blood, healthy inflammatory action and fever cannot be maintained. If the question should be asked, as it very often has been by medical gentlemen—What is irritation? I would answer: Irritation is that state of nerve which is *demonstrated* by Professor Matteuci in the dead animal, as 'an excitable nerve,' a nerve which is prone to excite preternatural muscular contraction, with ordinary excitation. Further: it is a nerve which exhibits impatience or pain when exposed to its ordinary stimulus, as shown by the increased sensibility of the retina, after the long-continued application of a strong light, and when even the influence of a feeble light causes intense pain. It is that susceptible condition of the nerves of the skin, which is induced by a burn or scald, or that augmentation of nervous excitability observed in the excito-motor nerves, when they act most energetically, even spasmodically, under the influence of the most trifling ordinary stimuli. It is that state of nerve which exists in the so-named 'irritable breast,' the 'irritable uterus,' or the irritable brain in puerpural mania, delirium tremens, &c. The only physical condition of nerve itself apparent in these derangements, is augmented arterial action in the nerve structure; but this is involved in some obscurity. The phenomena of nerve action during *irritation and excitement*, probably depends upon the *rapidity of progression of nerve force*, just as the amount of electrical fluid transmitted along a conducting wire from *ten* four-inch voltaic pairs in series, is considerably greater than the amount transmitted from *two* pairs of the same magnitude, depending not upon the extent of surface, but upon the reciprocal action of the series. In corroboration of this, there is, I believe, in all cases of nerve irritation and excitement, an increased rapidity in the respiratory functions, the source of this force. Irritation and pain cannot long continue in the nervous structure without producing determination of blood to the part; and hence the old axiom, 'ubi stimulus, ibi fluxus.' When an increased flow of blood to any part of the nervous system takes place, and continues to progress, there are invariably observed to occur three distinct stages of morbid action: 1st, Excitement; 2ndly, Irritation; and lastly, Oppressed action; one stage or the other obtaining just in proportion to the degree of arterial action prevailing.

"Increased arterial action itself appears to augment, to some extent, the natural susceptibility and irritability of the neural structure." Although we have already seen that nerve irritation is a condition dependent of the blood, there is little doubt that this state (including the structure of the great centres) is attributable sometimes to the circulation of impure or irritating sanguineous fluid, or to the contact of morbid or irritating secretions with the nerve fibre; all which conditions of blood and secretions originate in the state of the nervous ganglia, which supply the digestive and secernent organs. The nature of the blood which has to supply the nervous system with nutriment for its development, integrity, and the continuance of its vitality, formed as it is under the influence, and subject to the entire control, of the nervous centres, may be such as to materially alter the integrity of its organization, and disturb its conducting powers; and either by the deposition of tubercles, &c., in the nerve structure, or by its irritating qualities, may become itself a direct source of irritation, and yet can only be looked upon, like the mind, as an external irritant upon nerve, the great agent of the frame. It will thus be seen what an incalculable influence the quality of the blood possesses in cases of mania and other mental diseases. It is evident that the congestion and effects thus produced in the nerves, as they are by increased action of the circulatory system, are widely different in their characters and treatment from the *congestion which arises from obstruction to the return* of the blood by the venous system; in all which cases nerve depression, and loss of excitability, invariably prevail. The condition of nerve which takes place in cases of terrible injury, crushes, lightning, &c., is no doubt, in some instances, the complete destruction of the nerve structure itself, and of its capability for conduction. In other instances, it is probably the instantaneous withdrawal of the whole powers of the system towards the injury, or, in other words, the direction of all the nerve force of the frame towards the seat of the lesion; and, at other times, the momentary annihilation of the powers of life altogether, which latter appears to be the commonly received opinion. Professor Matteuci proved, in several instances, that in the frog all the powers of life were instantly destroyed by a sudden crush of an extremity, or some large portion of the frame. Diminished excitability is produced by the same causes, but is generally a secondary effect of those causes—a result of augmented sensibility, and very frequently alternates with the latter. Indeed, a general law in the animal economy is, that a corresponding depression is, at all times, the result of over-excitement.

"Nerve exhaustion is only a still lower degree of diminished excitability, or loss of nerve force; being the product of more powerful or long-continued irritants, morbid influences, shock, extreme violence, excitement, &c. In nerve exhaustion, the development of nerve force, as well as its transmission through the nervous filaments, is probably considerably diminished. The respiratory functions are very slowly or inefficiently performed, evincing a very sparing development of vital energy; the pulse is greatly diminished in frequency or power, and evinces, when attended with loss of consciousness, &c., a complete failure in the vital powers. Complete loss of nerve function is the zero of the same condition, arising from the destruction of excitability in the nervous system by the influence of the imponderable forces, sudden shock, intense lesion, the poisons, and, in some instances, the result of injury producing destruction of these organs by sanguineous and serous effusion, ramollissement or softening, and of tumour, and other morbid growths, &c. Other instances arise from vascular fulness and congestion, and are referrible to the condition described as nerve irritation, attended with that morbid condition. It appears, therefore, that the condition of nerve irritation is wisely and beautifully ordained by the great Creator and Preserver of our species, for the very purpose of exciting increased action, in order to the ejectment of all noxious matter and influences which have insidiously introduced themselves into the frame, in spite of all the admirable provisions for their exclusion. Like the detective orifices of the body for external irritants, the very basis of the frame (for I most assuredly look upon nerve structure as its basis), the great centres of the nervous system, themselves form an instinctive, conscious, and almost intelligent apparatus for the detection of noxious material existing in the various liquids, and tubes, vessels, and cells, and secretory apparatuses of the body—in fact, naked and unconcealed poison in every cavity or interstice in the animal economy; and immediately on its discovery, they set to work the various forces of the muscular or vascular system or the excretory functions, for its expulsion. As a further proof of the neural basis of diseases, I have extracted and compared their various stated and admitted *causes*; and find them to be, in most instances, such as would induce affections of the nervous system, analogical with the conditions already noticed. They are chiefly as follows:—

"Exciting Causes.—1. Cold or wet; sudden alternations of temperature; applications of cold to the heated body; or of the body much heated to ordinary temperatures; sudden chills produced by cold air, &c.; excessive heat, exposure to the sun's rays, &c. 2. Violent exercise, local and general fatigue, &c. 3. Intemperance. 4. Suppressed evacuations; obstructed functions, as tight lacing, &c. 5. Repulsed eruptions. 6. Passions of the mind, anger, fright, horror. 7. Contagion; irritants, as poisons; excessive irritation, as the shock of parturition; of morbid matter; irritation in the intestinal canal; acrid matter in the primæ viæ; mechanical and chemical irritants and injuries, &c. &c.; teething, worms, &c.; to which may be added spiculæ of bone, adventitious growths, &c.

"Predisposing Causes. 1st.—*To Inflammatory Diseases*:—1. Plethorie habit. 2. Strong muscular system. 3. Indulgence at table. 4. Good unimpaired constitution. 5. Suppressed evacuations.

"2nd.—*To Nervous Diseases*:—1. Weak and delicate habit. 2. Nervous temperament, and general and local debility. 3. Much sensibility and irritability. 4. Sanguine temperament. 5. Study, excessive grief, anxiety, the passions. 6. Poor living; preceding disease. 7. Indulgence in spirituous liquors. 8. Excess in venery, &c. 9. Profuse evacuations, or their suppression. 10. Warmth of season or climate. 11. Cold and wet seasons—variable temperature. 12. Damp and low situations—marsh miasma, &c., and moist localities, &c. 13. Hereditary taint, scrofula. 14. Want of cleanliness; pure air, ventilation, &c. 15. Childhood, puberty, adolescence, manhood, old age. We have thus evinced that, of the conditions and influences assigned as the principal causes of all diseases (whatever may be the hypothesis to which the authors cling who have enumerated them), the greater part are such as are commonly received as affecting primarily the nervous system, and that with very few exceptions; and no person, after exposure to some of these causes, can tell what will be the phase of disease manifested."

Specimen of Scientific Practice by men who have been licensed to practise physic and surgery, and in whom the public generally place such confidence, that they are only induced to use their senses when irreparable mischief has been done. This case is much akin to those in pages 332-3-4. We could count up a large number of patients whose limbs have been restored when amputation had been declared necessary to save life. When the doctor has a bad limb and sees no power in his physic to raise the vital powers of the body, the general conclusion he comes to is to cut the limb off, when by judicious treatment the limb would be saved.

Law Intelligence, Queen's Bench, July, 1856.—This was an action to recover compensation in damages for the alleged maltreatment of the plaintiff's wife by the defendant, who practised as a surgeon. The defendant pleaded not guilty. Mr. Lush, in stating the plaintiff's case, said that the plaintiff was a blacksmith, carrying on business at Abridge, in Essex; and that the defendant was a surgeon, practising in the same village. On a Sunday evening in August, 1855, the plaintiff's wife, who was nearly sixty years of age, and son, were riding in a cart, when the horse fell, and the wife met with an accident to her wrist. On her arrival home the defendant was sent for, when, on examining the arm, he came to the conclusion that the arm was broken about three inches from the elbow, although in reality it was not so, but that the wrist bones had been dislocated, and required immediate attention to bring them in place, or it could not be done at all, and that something was the matter with the wrist also. The defendant, on seeing the injury, immediately put the arm between two splints, bandaged it tightly, left some lotion, and went away. The defendant called from day to day. He continued the arm in bandages, using bran poultices, gin and water and vinegar lotions, fomentations, &c. &c., but nothing was done to the wrist. The plaintiff's wife continued to suffer extreme pain and to get worse daily. About the middle of September the plaintiff suggested that other advice should be called in. The defendant about that time had said he thought the arm would have to come off, and Dr. Thomas was sent for. Dr. Thomas receiving the defendant's statement of the nature of the injury as accurate, expressed an opinion that the plaintiff's wife would soon get better. About a week after the plaintiff suggested that Mr. Turner should be sent for, but the defendant objected, alleging it was no use to call in such a boy as that, and recommended that Dr. Bowers should be called in. That gentleman came and saw the plaintiff's wife, but he did not examine the arm, receiving as accurate the defendant's statement. Dr. Bowers advised leeches, &c., and went away. Throughout September and October the plaintiff's wife continued to get worse, and on the 30th October the plaintiff informed the defendant it was useless for him to continue any longer, and sent for Dr. Bowers, who came a second time and attended her. He then examined the arm, having the case under his immediate care, and on taking the splints off he found the arm had never been broken, but the wrist dislocated; and as it had not been set at the proper time, it was then impossible to do so. The fingers had got stiff and the wrist cramped from the use of tight bandages and the want of setting: and as the plaintiff's wife continued to get worse, in December Mr. Turner was called in, when that gentleman and Dr. Bowers continued their attendance on her. They then found the case was hopeless, and the patient was suffering extreme pain and agony. At that time the wrist had become fixed, and the fingers so stiff that one of them cracked in trying to straighten it. The suffering of the wife was so intense that it affected the nervous system materially, and a most lamentable result had followed, but whether from this neglect of treatment or not it was impossible to state. The poor woman was unable to get any sleep for fourteen days and nights, and at that time, as predicted, sleep came upon her, and she awoke a maniac. She was now in a lunatic asylum with no chance of recovery. The action was therefore brought to recover compensation in damages for the alleged ill-treatment of the injury to the wrist.

The learned counsel then called several witnesses in support of the above facts. The defendant had summoned the plaintiff to the County Court for 6*l.* odd, the amount of his charge, but he failed to recover.

After hearing the evidence for the plaintiff, Mr. T. Atkinson submitted the plaintiff had made out no case for the jury, the plaintiff's medical evidence having proved there was no dislocation of the wrist. The learned Judge ruled otherwise.

Swollen Knees are very common with working females, and in cases of weakened constitution in both sexes. When any inflammation in the knees, first apply mustard poultices and dry spongio; or if no spongio at hand, dry flannel. Repeat until the inflammation is subdued; then, forenoon, No. 17 bath list, and 150 after it. Afternoon or evening foment the knees with hot water, and after manipulate the swelling with cod-liver oil; replace spongio or flannel and mackintosh, sprinkled with hot water. If any pain in the joint apply No. 58; not without. Great warmth is necessary, and sufficient flannel must be used over the damp bandages; continue this till the swelling is absorbed or crisis, and then crisis treatment. Where the constitution is not strong, it will take time. The whole body should be sponged every day, and soaped all over twice a week. No ale, wine, spirits, or coffee.

Case I., extreme nervous Depression.—Gentleman, age 40, slight frame, overworked body and mind, liver affected; ordered thick under-clothing in July, and the following treatment:—On rising, 212, and in forenoon No. 160 and 162, keeping a warm pan to bowels and the rest of the body well covered with blankets; afternoon, ditto. When in bed at night mustard poultice on liver, and repeat it as often as can be borne, keeping the part constantly red: 180 and 188, both slightly sprinkled with warm water; 207, 210, 195, 157, at bedtime, if feet cold; 193 also, and 131 before getting into bed.

Impotency we have frequently seen entirely cured by the operation of our simple baths, and some cases which had resisted all other attempts at cure. The baths mostly beneficial in these cases are general tonic ones—112, 111, 113, 16, 101, 1, 2, 36.

Case J., not robust; on rising, 95 in summer, 96 in winter, with 97 three times per week, and 128½ and 130 once a week. Bed-time 83, four minutes in summer, 86, six minutes in winter; 98 once a week, or when cold, with 165 after it.

Case K., liver and kidneys affected; great weakness and depression. Gentleman, age 40, naturally good constitution. On arriving, found he could not bear even our treatment, but the following gave him a good start, and afterwards, he would stand more active treatment:—No. 212, at six a.m., with a little isinglass; breakfast at eight, and to have No. 211; diet: cup of beef-tea at twelve o'clock. At 9.30 have the following treatment:—No. 44, the sheet wrung out of very strong hot mustard and water, and remain in this 1½ hour, the feet at the same time on hot brick, or hot can; the brick or can to be wrapped in cloth wrung out of hot mustard and water; after the pack, rub the parts with dry hand only, and then put on spongio body bandage, sprinkled slightly with hot water, the spongio to go quite round the body; repeat this again at 3.30 in the afternoon. Bed-time, No. 13 to whole body, doing half at once, as in No. 26; use 153.

RAILWAY BRIDGE, MATLOCK BANK IN THE DISTANCE.

DIVISION VI.

EXTRACTS AND CUTS FROM THE BEST AND MOST MODERN WORKS ON PHYSIOLOGY.

DISEASE. *Morbus.* Any deviation from the natural and healthy actions of the whole system or any particular organ. Diseases may be:—*Local.* Affecting some particular part. — *Constitutional.* Affecting the whole system.—*Specific.* Marked by some disordered vital action, not common to diseases in general, but peculiar to the individual disease. — *Idiopathic.* Primary, and not dependent on any other disease. — *Symptomatic,* or *Sympathetic.* Dependent on and accompanying some other disease.—*Periodical.* Recurring at fixed periods. — *Acute.* Severe and of short continuance. — *Chronic.* Of long continuance.—*Sporadic.* Arising from adventitious causes affecting the individual. — *Epidemic.* Generally diffused among a population, and arising either from contagion, or some atmospheric or other cause, the influence of which is extensively felt.—*Endemic.* Peculiar to, or especially prevalent in, a certain region.—*Intercurrent.* Sporadic, but occurring during the prevalence of epidemic or endemic diseases.—*Contagious,* or *Infectious.* Communicable from one individual to another by personal contact, or by effluvia diffused through the air. — *Congenital.* Born with the individual. — *Hereditary.* Descending from the parents to their offspring.—*Acquired.* Neither hereditary nor congenital, but dependent on some cause operating after birth. — *Sthenic.* Attended with strong activity of the vital powers. — *Asthenic.* Attended with sinking of the vital powers.

There are many other distinctions of diseases, of more limited application: thus, diseases are *febrile,* attended with fever; *exanthematous,* consisting in an eruptive fever; *intermittent,* marked by a regular cessation and recurrence of the symptoms; *remittent,* marked by a regular diminution and exacerbation of the symptoms; *mild,* unaccompanied with any formidable symptoms; *malignant,* severely depressing the vital powers, dangerous and intractable; the term malignant has no very definite signification, but is applied chiefly to febrile diseases of the asthenic kind, and to local affections of a cancerous nature; *infantile*, most frequent in childhood; *puerperal*, incident to women soon after parturition.

DISEASES OF ARTISANS.—Besides the common causes of disease to which all mankind are more or less subject, there are some connected with particular occupations and modes of life, the investigation of which is alike important in a practical and philosophical point of view. These causes of disease may, in a general way, be referred—1. To confinement and bad ventilation. 2. To the effects of temperature and moisture. 3. To sedentary habits. 4. To over-fatigue. 5. To excessive exertion of some parts of the body, and inactivity of others. 6. To constrained and unnatural postures. 7. To the noxious influence of animal, vegetable, or mineral particles inhaled with the air, or otherwise applied to the body.

1. *Confinement and bad ventilation.*—The effects of these evils are most conspicuous in children, who suffer more severely from them than adults. In our manufacturing towns, where crowds of children are confined together in a close and impure atmosphere, it is found that the growth of the frame and the expansion of the mind are alike impeded, and the scrofulous diathesis induced; hence ensue deformity, defective development of the sexual system at puberty, and the various modifications of tubercular disease.

2. *Temperature and moisture.*—Constant exposure to either too high or too low a temperature is well known to debilitate the frame and impair the general health; and this effect is much increased, in either instance, by excessive moisture. It does not appear, however, that any ordinary exposure to these causes is productive of any particular diseases; and it is only when the body is subjected to sudden transitions from one to the other, that serious consequences ensue. These arise, chiefly, from the sudden obstruction of cutaneous perspiration, and rapid changes in the relative state of the circulation on the surface and in deep-seated organs. Brass and iron founders, glass-blowers, bakers, brewers, and various other artizans, are continually subjected to an injuriously warm atmosphere; and an imprudent transition to the open air, and still more an exposure to cold draughts, frequently gives rise to catarrhal and rheumatic affections, asthma, and visceral inflammation.

3. *Sedentary habits.*—The general effect of want of exercise is to diminish the tone of the muscles, to render the functions of the abdominal viscera torpid, and to induce langour and debility of the whole system, with a predominance of the lymphatic temperament: hence, dyspepsia, constipation, hæmorrhoids, obesity, and, in females, leucorrhœa, and derangements of the menstrual function. The sitting posture, also, when too long continued, is evidently inimical to the free performance of various important functions. Literary persons, clerks, weavers, sempstresses, and many others, are liable to suffer in their health from deficient exercise and the sitting posture. There are some occupations which combine an unnatural and constrained position of the body with sedentary habits: these cases will be presently noticed.

4. *Over-fatigue.*—An undue expenditure of muscular power doubtless tends to shorten the term of life, by gradually exhausting the vital energy; its effects, however, are seldom very appreciable, unless over-exertion be combined with intemperance, or habits otherwise unhealthy. Coalheavers, porters, and various others, are liable to suffer from over-exertion of the muscles.

5. *Excessive exertion of some parts of the body, and inactivity of others.*—The bad consequences of excessive exertion of particular organs is exemplified in diseases of the heart, lungs, and their great vessels, which are produced by over-exertion of the respiratory apparatus, in those who play on wind instruments and in singers. Amaurosis, cataract, and other diseases of the eyes, are common among those whose occupation obliges them to exercise their vision for a length of time on very minute objects, or to expose their eyes to a glare of light; as watchmakers, engravers, those engaged about large furnaces, &c.

To the combined influence of posture and local exertion, may be attributed the frequency of hernia at the groin in cavalry soldiers who ride with very long stirrups. The effect of inactivity on particular parts of the body seldom amounts to absolute disease; but muscular debility is the general result of insufficient exercise of any of the limbs: we have a familiar example in postilions, and others who are constantly riding, and who are frequently so weak in the legs, that, even when otherwise robust, they are unable to walk any distance without great fatigue.

6. *Constrained and unnatural postures.*—The evils arising from this cause are experienced by many classes of artizans. In tailors, shoemakers, button burnishers, and others, the bent position of the body weakens the spine, and interferes with the functions of the thoracic and abdominal viscera, while the strong pressure which is frequently made on the epigastrium is particularly injurious to the stomach: hence curvature of the spine, dyspepsia, gastrodynia, constipation, hæmorrhoids, asthma, and pulmonary diseases. Clerks in offices, who acquire the habit of leaning too much over the desk, and pressing the epigastrium against its edge, are subject to the same evils in a minor degree.

7. *The action of animal, vegetable, or mineral particles, inhaled with the air, or otherwise applied to the body.*—The principal morbific agents of this kind are mercury, lead, copper, arsenic, antimony, zinc, tin, the mineral acids, animal putrefaction, vegetable putrefaction, soot, and fine powders of various kinds, which produce mechanical irritation.—*Hooper's Medical Dictionary.*

FAINTING OR SYNCOPE. (From the Greek, I strike, or cut down.) Fainting or swooning. A disease in which the respiration and action of the heart either cease, or become much weaker than usual, with paleness and coldness, arising from diminished energy of the brain, or from organic affections of the heart. Cullen's species are:—

1. *Syncope cardiaca,* the cardiac syncope, arising without a visible cause, and with violent palpitation of the heart during the intervals, and depending generally on some organic affection of the heart or neighbouring vessels.

2. *Syncope occasionalis,* the exciting cause being manifest. The disease is sometimes preceded by anxiety about the præcordia, a sense of fulness ascending from the stomach towards the head, vertigo, or confusion of ideas, dimness of sight, and coldness of the extremities. The attacks are frequently attended with or end in vomiting, and sometimes in epileptic or other convulsions. The causes are sudden and violent emotions of the mind, pungent or disagreeable odours, derangement of the primæ viæ, debility from preceding disorders, loss of blood, spontaneous or artificial, the operation of paracentesis, the kneeling position, &c. An ordinary fainting fit is a matter of little importance, and occurs frequently in persons who are in general perfectly healthy. The actions of the system will generally be spontaneously restored in a short time. This is accelerated by the horizontal position, which throws the blood on the brain, and thereby stimulates it to resume its wonted functions. Pungent volatile substances applied to the nostrils, cold water sprinkled on the face or chest, and the internal administration of gentle stimulants as soon as the patient can swallow, may also be resorted to. The more formidable kinds of syncope, which arise from diseases of the heart or great vessels, or from profuse hæmorrhage, need not be noticed here, as their consideration belongs to the particular case in connexion with which they occur.

BALDNESS. *Calvities.* The falling off of the hair, which is natural in old age, may be prematurely induced by a variety of causes. It is common after severe fevers; and consumptive patients, and those labouring under cachectic diseases, frequently lose their hair. In these cases it probably arises from debility of the cutaneous vessels, and insufficient nutrition of the bulbs of the hair. Some persons, who are in all respects healthy, lose their hair very early in life, without any obvious cause. Where the disposition to baldness is only slight, the use of animal fat as bears' grease, &c. will often suffice to obviate it; but when the hair falls off in any quantity, try bath list 130, 134.

DIGESTION. (*Digestio;* from *digero*, I dissolve.)

1. An operation in *Chemistry* and *Pharmacy*, in which such matters as are intended to act slowly on each other are exposed to a heat, continued for some time.

2. In *Physiology*, the change that the food undergoes in the stomach, by which it is converted into chyme.

The immediate object of digestion is formation of chyle, a matter destined for the reparation of the continual waste of the animal economy. The digestive organs contribute also in many other ways to nutrition. If we judge of the importance of a function by the number and variety of its organs, digestion ought to be placed in the first rank; no other function of the animal economy presents such a complicated apparatus. There always exists an evident relation between the sort of aliment proper for an animal, and the disposition of its digestive organs. If, by their nature, the aliments are very different from the elements which compose the animal, if, for example, it is graminivorous, the dimensions of the apparatus will be more complicated and more considerable; if, on the contrary, the animal feeds on flesh, the digestive organs will be fewer and more simple, as is seen in the carnivorous animals. Man, called to use equally animal and vegetable aliments, keeps a mean between the graminivorous and carnivorous animals, as to the disposition and complication of his digestive apparatus, without deserving, on that account, to be called omnivorous.

We may represent the digestive apparatus as a long canal, variously twisted upon itself, wide in certain points, narrow in others, susceptible of contracting or enlarging its dimensions, and into which a great quantity of fluids are poured by means of different ducts. The canal is divided into many parts by anatomists:—

1. The mouth.
2. The pharynx.
3. The œsophagus.
4. The stomach.
5. The small intestines.
6. The great intestines.
7. The anus.

Two membraneous layers form the sides of the digestive canal in its whole length. The inner layer, which is intended to be in contact with the aliments, consists of a mucous membrane, the appearance and structure of which vary in every one of the portions of the canal; so that it is not the same in the pharynx as in the mouth, nor is it in the stomach like what it is in the œsophagus, &c. In the lips and the anus this membrane becomes confounded with the skin. The second layer of the sides of the digestive canal is muscular; it is composed of two layers of fibres, one longitudinal, the other circular. The arrangement, the thickness, the nature of the fibres which enter into the composition of these strata are different, according as they are observed in the mouth, in the œsophagus, or in the large intestine, &c. A great number of blood-vessels go to, or come from, the digestive canal; but the abdominal portion of this canal receives a quantity incomparably greater than the superior parts. This presents only what are necessary for its nutrition, and the inconsiderable secretion of which it is the seat; whilst the number and the volume of the vessels that belong to the abdominal portion show that it must be the agent of a considerable secretion. The chyliferous vessels arise exclusively from the small intestine.

As to the nerves, they are distributed to the digestive canal in an order inverse to that of the vessels; that is, the cephalic parts, *cervical* and *pectoral*, receive a great deal more than the abdominal portion, the stomach excepted, where the two nerves of the eighth pair terminate. The other parts of the canal scarcely receive any branch of the cerebral nerves. The only nerves that are observed, proceed from the *subdiaphragmatic* ganglions of the great sympathetic.

We shall see, further on, the relation that exists between the modes of distribution of the nerves, and the functions of the superior and inferior portions of the digestive canal.

The bodies that pour fluids into the digestive canal, are—

1. The *digestive mucous membrane.*
2. *Isolated follicles* that are spread in great number in the whole length of this membrane.
3. The *agglomerated follicles* which are found at the isthmus of the throat, between the *pillars* of the *velum* of the palate, and sometimes at the junction of the œsophagus and the stomach.
4. The *mucous glands,* which exist in a greater or less number in the sides of the cheeks, in the roof of the palate, and around the œsophagus.
5. The *parotid,* the *submaxillary,* and *sublingual glands,* which secrete the saliva of the mouth, the liver, and the pancreas; the first of which pours the bile, the second the pancreatic juice, by distinct canals, into the superior part of the small intestine, called duodenum. All the digestive organs contained in the abdominal cavity are immediately covered, more or less completely, by the serous membrane called the peritonæum. This membrane, by the manner in which it is disposed, and by its physical and vital properties, is very useful in the act of digestion, by preserving to the organs their respective relations, by favouring their changes of volume, by rendering easy the sliding motions which they perform upon each other and upon the adjoining parts.

The surface of the mucous digestive membrane is always lubricated by a glutinous adhesive matter, more or less abundant, that is seen in greatest quantity where there exist no follicles,—a circumstance which seems to indicate that these are not the only secreting organs. A part of this matter, to which is given generally the name of *mucus,* continually evaporates, so that there exists habitually a certain quantity of vapours in all the points of the digestive canal. The chemical nature of this substance, as taken at the intestinal surface, is still very little known. It is transparent, with a light grey tint; it adheres to the membrane which forms it; its taste is salt, and its acidity is shown by the reagents; its formation still continues some time after death. That which is formed in the mouth, in the pharynx, and in the œsophagus, goes into the stomach mixed with the saliva and the fluids of the mucous glands, by movements of deglutition, which succeed each other at near intervals. According to this detail, it would appear that the stomach ought to contain, after it has been some time empty of aliments, a considerable quantity of a mixture of mucus, of saliva, and follicular fluid. This observation is not proved, at least in the greatest number of individuals. However, in a number of persons, who are evidently in a particular state, there exist, in the morning, in the stomach, many ounces of this mixture. In certain cases it is foamy, slightly troubled, very little viscous, holding suspended some flakes of mucus: its taste is quite acid, not disagreeable, very sensible in the throat, acting upon the teeth, so as to diminish the polish of their surface, and rendering their motion upon each other more difficult. This liquid reddens paper stained with turnsole.

In the same individual, in other circumstances, and with the same appearances as to colour, transparency, and consistency, the liquid of the stomach had no savour, nor any acid property; it is a little salt; the solution of potash, as well as the nitric and sulphuric acids, produced in it no apparent change.

The diaphragm, and the abdominal muscles, produce a sort of perpetual agitation of the digestive organs contained in the abdominal cavity; they exert upon them a continual pressure, which becomes sometimes very considerable.

The digestive actions which by their union constitute digestion are :—

1. The apprehension of aliments.
2. Mastication.
3. Insalivation.
4. Deglutition.

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5. The action of the stomach.
6. The action of the small intestines.
7. The action of the large intestines.
8. The expulsion of the fæcal matter.

All the digestive actions do not equally contribute to the production of chyle; the action of the stomach, and that of the small intestines, are alone absolutely necessary. The digestion of solid food requires generally the eight digestive actions: that of drinks is much more simple; it comprehends only apprehension, deglutition, the action of the stomach, and that of the small intestines.

The mastication and deglutition of the food being effected, we have now to notice the action of the stomach on the aliment; chemical alterations will now present themselves to our examination. In the stomach, the food is transformed into a matter proper to animals, which is named *chyme.*

The accumulation of food in the stomach is accompanied by many sensations, of which it is necessary to take account:—At first it is an agreeable feeling, or the pleasure of a want satisfied. Hunger is appeased by degrees; the general weakness that accompanied it is replaced by an active state, and a feeling of new force. If the introduction of food is continued, we experience a sensation of fulness and satiety, which indicates that the stomach is sufficiently replenished; and if, contrary to this instinctive information, we still persist to make use of food, disgust and nausea soon arrive, and they are very soon followed by vomiting. These different impressions must not be attributed to the volume of the aliments alone. Everything being equal in other respects, food, very nutritive, occasions, more promptly, the feeling of satiety. A substance which is not very nourishing does not easily calm hunger, though it is taken in great quantity.

The mucous membrane of the stomach, then, is endowed with considerable sensibility, since it distinguishes the nature of substances which come in contact with it. This property is very strongly marked if an irritating poisonous substance is swallowed; intolerable pain is then felt. We also know that the stomach is sensible to the temperature of food. We cannot doubt that the presence of the aliments of the stomach causes a great excitement, from the redness of the mucous membrane, from the quantity of fluid it secretes, and the volume of vessels directed there; but this is favourable to chymification. This excitement of the stomach influences the general state of the functions. The time that the aliments remain in the stomach is considerable, generally several hours: it is during this stay that they are transformed into chyme.

Changes of the aliments in the stomach.—It is more than an hour before the food suffers any apparent change in the stomach, more than what results from the perspiratory and mucous fluids with which they are mixed, and which are continually renewed. The stomach is uniformly distended during this time; but the whole extent of the pyloric portion afterwards contracts, particularly that nearest the splenic portion, into which the food is pressed. Afterwards, there is nothing found in the pyloric portion but chyme, mixed with a small quantity of unchanged food. The best authors have agreed to consider the chyme as a homogeneous substance, pultaceous, greyish, of a sweetish taste, insipid, slightly acid, and preserving some of the properties of the food. This description leaves much to be explained.

The result of Dr. Magendie's experiments are as follows:—

A. There are as many sorts of chyme as there are different sorts of food, if we judge by the colour, consistence, appearance, &c.; as we may easily ascertain by giving different simple alimentary substances to dogs to cat, and killing them during the operation of digestion. He frequently found the same result in man, in the dead bodies of criminals, or persons dead by accident.

B. Animal substances are generally more easily and completely changed than vegetable substances. It frequently happens that these last traverse the whole intestinal canal without changing their apparent properties. He has frequently seen in the rectum, and in the small intestines, the vegetables which are used in soup, spinach, sorrel, &c., which had preserved the most part of their properties; their colour alone appeared sensibly changed by the contact of the bile.

Chyme is formed particularly in the pyloric portion. The food appears to be introduced slowly into it; and during the time they remain, they undergo transformation. The doctor believes, however, that he has observed frequently chymous matter at the surface of the mass of aliments which fill the splenic portion; but the aliments in general preserve their properties in this part of the stomach.

All the alimentary substances are not transformed into chyme with the same promptitude.

Generally the fat substances, the tendons, the cartilages, the concrete albumen, the mucilaginous and sweet vegetables, resist more the action of the stomach than the caseous, fibrinous, and glutinous substances. Even some substances appear refractory; such as the bones, the epidermis of fruits, their stones, and whole seeds, &c. In determining the digestibility of food, the volume of the portions swallowed ought to be taken into account. The largest pieces, of whatever nature, remain longest in the stomach; on the contrary, a substance which is not digestible, if it is very small, such as grape-stones, does not rest in the stomach, but passes quickly with the chyme into the intestine. In respect of the facility and quickness of the formation of chyme, it is different in every different individual. It is evident, after what has been said, that to fix the necessary time for the chymification of all the food contained in the stomach, we ought to take into account their quantity, their chemical nature, the manner in which the mastification acts upon them, and the individual disposition. However, in four or five hours after an ordinary meal, the transformation of the whole of the food into chyme is generally effected.

DYSPEPSIA. (From the Greek,—with difficulty I concoct.)—Indigestion. This very common disease consists generally in a want of appetite, a sudden and transient distension of the stomach, eructations of various kinds, heartburn, pain in the region of the stomach, perhaps vomiting, rumbling noise in the bowels, and frequently costiveness or diarrhœa. A long train of nervous symptoms are also frequent attendants. In some cases a few only of the above symptoms are present, while in others many additional ones are experienced, such as severe pains in the head and chest, and various affections of the sight, as slight degrees of amaurosis, double vision, &c.

It occurs at all ages, but chiefly in persons between thirty and forty years of age, and is principally to be met with in those who devote much time to study, or who lead either a very sedentary or an irregular life. A great singularity attendant on it is, that it may and often does continue a great length of time, without any aggravation or remission of the symptoms. Grief and uneasiness of mind, intense study, profuse evacuations, excess in venery, hard drinking, particularly of spirituous liquours, and the abuse of tea, tobacco, opium, and other narcotics, immoderate repletion, and over-distension of the stomach, and much exposure to moist and cold air, when without exercise, are the causes which usually occasion dyspepsia. Dyspepsia never proves fatal, unless when, by a very long continuance, it give rise to some other disease, as organic lesions of the viscera, dropsy, or phthisis; but it is at all times very difficult to remove, and particularly so in warm climates. It is often a secondary and symptomatic disease, caused by structural alterations of some part of the stomach; and there are few organic diseases in the neighbouring viscera from which the stomach does not become weakened, and indigestion result.

The term dyspepsia has been very vaguely used, and a great variety of symptoms, arising from a proportionate number of different morbid states, have been associated under the same name. The writings of Marcus and Broussais have led many to refer these symptoms universally to inflammatory states of different parts of the gastro-enteric membrane; a doctrine which, like most others of a similar exclusive character, is at once confuted by an appeal to actual observation; and which is especially pernicious in a practical point of view, inasmuch as it too often inflicts leeches and starvation, where they can very ill be borne. It is indeed true that dyspeptic symptoms are often produced by the inflammatory states alluded to; and it is true, as illustrated by Dr. Wilson Philip, that when functional derangement has existed for a length of time, the vascular actions of the part become affected, and inflammation is set up; but if we are content to be guided simply by what is to be seen on the dissection of those who, when living, have been subject to dyspepsia, we shall be convinced that chronic inflammation is far from being the general cause of this affection. The morbid states which give rise to dyspeptic symptoms appear to be atony and torpor of the organs; morbid irritability, distinct from an inflammatory state; depraved secretion; and chronic inflammation. To these, severally or combined in various degrees, restricted to particular parts, or more extensively involving the alimentary canal, the diversity of symptoms, included under the term indigestion, may for the most part be traced.

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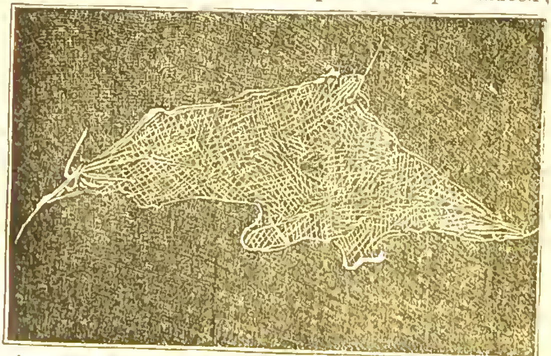
I quote the following and other articles from Dr. Southwood Smith's very interesting work, "The Philosophy of Health," in two volumes, with many cuts. Cox, King William-street, London, and all booksellers; price 5s. This elaborate work enters very extensively into the physical and mental constitution of man, and is well worth reading.

FIRST OR PRIMARY STRUCTURE OF THE BODY.—Dr. Smith says, —"The first primary tissue of the body is the peculiar substance termed *membrane*. It has been already stated that one of the ultimate forms of animal matter is a coagulable substance, becoming concrete or solid under the process of coagulation. The commencement of organization seems to be the arrangement of this concrete matter into straight thready lines, at first so small as to be imperceptible to the naked eye. Vast numbers of these threads successively uniting, at length form a single thread of sufficient magnitude to be visible, but still smaller than the finest thread of the silkworm. If the length of these threads be greater than their breadth, they are called fibres; if, on the contrary, their breadth exceed their length, they are termed plates or laminæ. By the approximation of these fibres or plates in every possible direction, and by their accumulation, combination, and condensation, is constituted the simplest form of organized substance, the primary tissue called membrane.

"Membrane once formed is extensively employed in the composition of the body; it is indeed the material principally used in producing, covering, containing, protecting, and fixing every other component part of it. In a word, it forms the basis upon which the other parts are superinduced; or rather the mould into which their particles are deposited; so that were it possible to remove every other kind of matter, and to leave this primary tissue unaltered in figure and

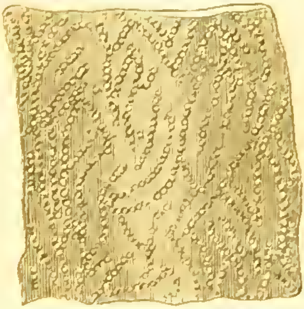


A single film of the cellular tissue (composing the substance of the body), lifted up and slightly distended. —*From Smith.*

undiminished in bulk, the general form and outline of the body, as well as the form and outline of all its individual parts, would remain unchanged. Membrane exists under several distinct forms; a knowledge of the peculiarities of which will materially assist us in understanding the composition of the body. The simplest form of membrane, and that which is conceived to constitute the original structure from which all the others are produced, is termed the *cellular*. When in thin slices, *cellular membrane* appears as a semi-transparent and colourless substance; when examined in thicker masses, it is of a whitish or greyish colour. It consists of minute threads, which cross each other in every possible direction, leaving spaces between them, and thus forming a mesh or network, not unlike the spider's web. The term cells, given to these interspaces, is employed rather in a figurative sense than as the expression of the fact; for there are no such distinct partitions as the term cell implies. The best conception that can be formed of the arrangement of the component parts of this structure is, to a suppose a substance consisting of an infinite number of slender thready lines crossing each other in every possible direction. The interspaces between these lines during life, and in the state of health, are filled with a thin exhalation of an aqueous nature, a vapour rather than a fluid, rendering and keeping the tissue always moist. This vapour consists of the thinner part of the blood, poured into these interstitial spaces by a process hereafter to be described, termed secretion. When occupying those spaces, it makes no long abode within them, but is speedily removed by the process of absorption. In health, these two operations exactly equal each other; but if any cause arise to disturb the equilibrium, the vapour accumulates, condenses, and forms an aqueous fluid, which distends the cells and gravitates to the most depending parts. Slightly organized as this tissue is, and indistinct as its vital functions may be, it is obvious that it must be the seat of at least two vital functions, secretion and absorption.

"It is certain that the interspaces or cells of this membrane have no determinate form or size, that they communicate freely with each other, and that this communication extends over the whole body; for if a limb which has been infiltrated be frozen, a thousand small icicles will be formed, assuming the shape of the containing cells, some of which are found to be circular, and others cylindrical, and so on. If air or water escape into any particular part of the body, it is often effused over the whole extent of it, and butchers are observed to inflate animals by making a puncture in some part where the cellular tissue is loose, and from this one aperture the air is forced to the most distant parts of the body.

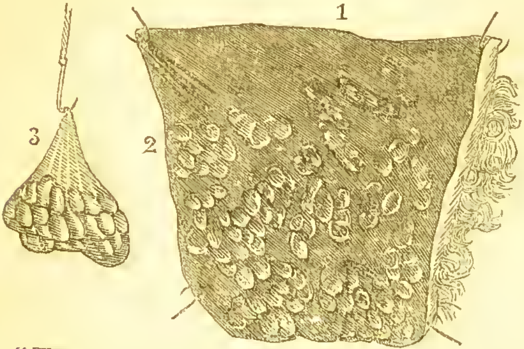
"Cellular membrane, variously modified and disposed, forms the main bulk of all the other solid parts of the body, constituting their common envelope and bond of union, and filling up all their interstices. It is dense or loose, coarse or fine, according to its situation and office. Wherever it is subject to pressure, it is dense and firm, as in the palm of the hand and the sole of the foot; around the internal organs it is more loose and delicate, and it becomes finer and finer as it divides and subdivides, in order to envelope the soft and tender structures of the body.



A portion of cellular tissue, very highly magnified, showing the strings of globules of which its ultimate fibres are by some supposed to consist.

"According to some who have carefully examined with the microscope its component threads, they consist of minute particles of a globular figure; other microscopical observers regard the cellular threads as coagulated or condensed animal substance, perfectly amorphous (without form).

"Every part of this tissue is penetrated by arteries, veins, absorbents, and nerves, endowing it with properties truly vital, though in a less degree than any of the other primary tissues; and varied and important as the uses are which it serves in the economy, the most manifest, though certainly not the only ones, are those which depend upon its physical properties of cohesion, flexibility, extensibility, and elasticity.



1, a portion of adipose (fatty) tissue; 2, minute bags containing the fat; 3, a cluster of the bags, separated and suspended.

"The tissue which contains the fat, termed the *adipose*, is the second form of membrane; it is obviously a modification of the cellular, from which it differs, both in the magnitude of its fibres, whence it constitutes a tougher and coarser web, and in their arrangement; for it is so disposed as to form distinct bags in which the fat is contained. Adipose tissue consists of rounded packets, separated from each other by furrows; each packet is composed of small spheroidal particles; each particle is again divisible into still smaller grains, which, on minute inspection, present the appearance of vesicles filled with the adipose matter.

"The cells of the cellular tissue, as has been shown, are continuous over the whole body; but each adipose vesicle is a distinct bag, having no communication whatever with any other. The cellular tissue is universally diffused; but the adipose is placed only in particular parts of the body; principally beneath the skin, and more especially between the skin and the abdominal muscles, and around some of the organs contained in the chest and abdomen, as the heart, the kidneys, the mesentery, and the omenta. In most of these situations some portion of it is generally found, whatever be the degree of leanness to which the body may be reduced; while in the cranium, the brain, the eye, the ear, the nose, and several other organs, there is none, whatever be the degree of corpulency. The uses of the fat, which are various, will be stated hereafter.

"The third form of membrane is termed the *serous*. Like the adipose, *serous membrane* is a modification of the cellular, and, like it also, it is limited in its situation to particular parts of the body, that is, to its three great cavities, namely, the head, the chest, and the abdomen. To the two latter it affords an internal lining, and to all the organs contained in all the three cavities it affords a covering. By its external surface it is united to the wall of the cavity or the substance of the organ it invests; by its internal surface it is free and unattached: whence this surface is in contact only with itself, forming a close cavity or shut sac, having no communication with the external air. Smooth and polished, it is rendered moist by a fluid which is supposed to be exhaled in a gaseous state from the serum of the blood; and from this serous fluid the membrane derives its name. Though thin, serous membrane is dense, compact, and of great strength in proportion to its bulk: it is extensible and elastic; extensible, for it expands with the dilatation of the chest in inspiration; elastic, for it contracts with the diminished size of the chest in expiration. In like manner, it stretches with the enlargement of the stomach during a hearty meal, and contracts as the stomach gradually diminishes on emptying itself of its contents. It is furnished with no blood-vessels large enough to admit the colouring matter of the blood; but it is supplied with a great number of the colourless vessels termed exhalents, with the vessels termed absorbents, and with a few nerves. It indicates no vital properties, but those which are common to the simple form of the primary tissue. Its specific uses are to afford a lining to the internal cavities; to furnish a covering to the internal organs; by its polished and smooth surface, to allow a free motion of those organs on each other, and by the moisture with which it is lubricated, to prevent them from adhering together, however closely, or for however long a period they may be in contact.

"The fourth form of membrane, the *fibrous*, named from the obvious arrangement of its component parts, consists of longitudinal fibres, large enough to be visible to the naked eye, placed parallel to each other, and closely united. Sometimes these fibres are combined in such a manner as to form a continuous and extended surface, constituting a thin, smooth, dense, and strong membrane, such as that which lines the external surface of bones termed *periosteum*, or the internal surface of the skull (dura mater). At other times they form a firm and tough expansion (aponeurosis) which descends between certain muscles, separating them from each other, and affording a fixed point for the origin or insertion of neighbouring muscles; or which is stretched over muscles, and sometimes over even an entire limb, in order to confine the muscles firmly in their situation, and to aid and direct their action. Fibrous membrane also constitutes the compact, strong, tough, and flexible bands used for tying parts firmly together, termed *ligaments*, principally employed in connecting the bones with each other, and particularly about the joints; and lastly, fibrous membrane forms the rounded white cords in which muscles often terminate, called *tendons*, the principal use of which is to connect the muscles with the bones, and to serve as cords or ropes to transmit the action of the muscle to a distant point, in the accomplishment of which purposes their operation appears to be entirely mechanical.

"The fifth form of membrane, the *mucous*, derives its name from the peculiar fluid with which its surface is covered, called mucus, and which is secreted by numerous minute glands, imbedded in the substance of the membrane. As serous membrane forms a shut sac, completely excluding the air, mucous membrane, on the contrary, lines the various cavities which are exposed to the air, such as the mouth, the nostrils, the windpipe, the gullet, the stomach, the intestines, the urinary organs, and the uterine system. Its internal surface, or that by which it is attached to the passages it lines, is smooth and dense; its external surface, or that which is exposed to the contact of the air, is soft and pulpy, like the pile of velvet. It

A portion of the stomach, showing its internal surface, or mucous coat.

bears a considerable resemblance to the external surface of the rind of the ripe peach, owing to the ciliated membrane.

"Unlike all the other tissues of this class, the mucous membranes are the immediate seat of some of the most important functions of the economy; in the lung, respiration; in the stomach, of digestion; in one part of the intestine, of chylification; in another, of excretion; while in the mouth and nose, they are the seat of the animal functions of taste and smell; and they are highly organized in accordance with the importance of the functions they perform.

"The last form of membrane which it is necessary to our present purpose to particularize is that which constitutes the external covering of the body, and which is called the *skin*. The skin is everywhere directly continuous with the mucous membranes that line the internal passages, and its structure is perfectly analogous. Both the external and the internal surface of the body may be said therefore to be covered by a continuous membrane, possessing essentially the same organization, and almost identically the same chemical composition. The skin is an organ which performs exceedingly varied and important functions in the economy, to the understanding of which it is necessary to have a clear conception of its structure; some further account of it will therefore be required; but this will be more advantageously given when the offices it serves are explained.

"Such is the structure, and such are the properties, of the first distinct form of organized matter. The second primary tissue, termed the *cartilaginous*, is a substance intermediate between membrane and bone. The nature of its organization is not clearly ascertained. By some anatomists, it is regarded as a uniform and homogeneous substance, like firm jelly, without fibres, plates, or cells; others state that they have been able to detect in it longitudinal fibres, interlaced by other fibres in an oblique and transverse direction, but without determinate order. All are agreed that it is without visible vessels or nerves: not that it is supposed to be destitute of them, but that they are so minute as to elude observation. Its manifest properties are wholly mechanical. It is dense, strong, inextensible, flexible, and highly elastic. It is chiefly by its property of elasticity that it accomplishes the various purposes it serves in the economy. It is placed at the extremities of bones, especially about the joints, where, by its smooth surface, it facilitates motion, and, by its yielding nature, prevents the shock or jar which would be produced were the same kind and degree of motion effected by a rigid and inflexible substance. Where a certain degree of strength with a considerable degree of flexibility are required, it supplies the place of bone, as in the spinal column, the ribs, and the larynx.

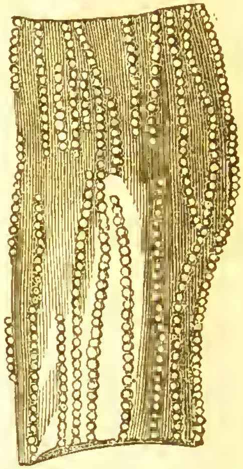
"The third distinct form of organized matter is termed the OSSEOUS tissue. Bone is composed of two distinct substances, an animal and an earthy matter: the former organic, the latter inorganic. The animal or organic matter is analogous both in its nature and in its arrangement to cellular tissue; the earthy or inorganic matter consists of phosphoric acid combined with lime, forming phosphate of lime. The cellular tissue is aggregated into plates or laminæ, which are placed one upon another, leaving between them interspaces or cells.

"All the primary tissues which have now been considered consist of precisely the same proximate principles. Albumen is the basis of them all; with the albumen is always mixed more or less gelatin, together with a minute quantity of saline substance: to the osseous tissue is superadded a large portion of earthy matter. With the exception of the mucous, the organization of all these tissues is simple; their vital properties are low in kind and in degree; their decided properties are physical, and the uses they serve in the economy are almost wholly mechanical. But we next come to a tissue widely different in every one of those circumstances, a tissue consisting of a new kind of animal matter, and endowed with a property not only peculiar to itself, but proper to living substance, and characteristic of a high degree of vital power. MUSCULAR TISSUE, the fourth distinct form of animal matter, commonly known under the name of flesh, is a substance resembling no other in nature. It consists of a soft and pulpy substance, having little cohesive power, arranged into fibres which are distinctly visible to the naked eye, and which are disposed in a regular and uniform manner, being placed close and parallel to each other. These fibres are everywhere pretty uniformly the same in shape, size, and general appearance, being delicate, soft, flattened, and, though consisting of a tender pulp, still solid. When examined under the microscope, fibres, which to the naked eye appear to be single threads, are seen to divide successively into smaller threads, the minutest or the ultimate division not exceeding, as is supposed, the 40,000th part of an inch in diameter. On the other hand, the fibres which are large enough to be visible to the naked eye are obviously aggregated into bundles of different magnitude in different muscles, but always of the same uniform size in the same muscle.

"The ultimate thread, or the minutest division of which the muscular fibre is susceptible, is called a filament; the smallest thread which can be distinguished by the naked eye is termed a fibre; and the bundle which is formed by the union of fibres is denominated a fasciculus. The proper muscular substance is thus arranged into three distinct forms progressively increasing in size,—the filament, the fibre, and the fasciculus. The filament, the fibre, the fasciculus, as well as the muscle itself, formed by the aggregation of fasciculi, is each enclosed in its own distinct sheath of cellular membrane.

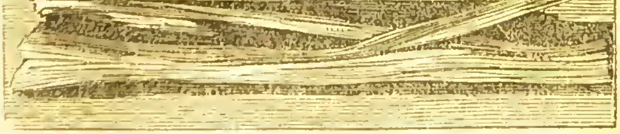
"Every ultimate thread or filament appears to be provided with the ultimate branch of an artery, vein, and nerve. These vessels are seen ramifying on the surface of the delicate web of membrane that encloses the pulp, but cannot be traced into it.

"The proximate principle of which the muscular pulp is composed is fibrin. From the pulp, when inclosed in its sheath of membrane, albumen, jelly, various salts, and a peculiar animal extract called osmazone, are also obtained; but these substances are probably derived from the membranous, not the muscular, matter. Fibrin contains a larger proportion of azote—the element peculiar to the animal body, and by the possession of which its chemical composition is distinguished from that of the vegetable—than any other animal substance.



Ultimate fibres of muscle, greatly magnified, showing the strings of globules of which they are supposed to consist.

"Muscular tissue possesses a slight degree of cohesion, a high degree of flexibility and extensibility, but no degree of elasticity; for although muscle, considered as a compound of muscular substance and membrane, be highly elastic, yet this property is probably altogether owing to the membranous matter in which it is enveloped. Its peculiar and distinctive property is vital, not physical, and consists in the power of diminishing its length, or of contracting or shortening itself, on the application of a stimulus. This pro-



Portion of the trunk of a nerve; dividing into branches.

perty, which is termed contractility, is the great, if not the sole, source of motion in the body. Without doubt, elasticity and gravity, under the generating and controlling power of contractility, aid in accomplishing various kinds of motion. Thus membranes, tendons, ligaments, cartilages, and bones, by their physical and mechanical properties, modify, economize, facilitate, concentrate, and direct the motive power generated by the pure muscular substance; but still the only real source of motion in the body is muscular tissue, and the only mode in which motion is generated is by contractility. This will be more fully understood hereafter."

(DR. SMITH) ON SECRETIONS.—"Since every secreting organ is copiously supplied with blood, it follows that a great part of the blood of the body is always circulating in secreting organs; and, indeed, it is to afford materials for the action of these organs that the blood itself is formed.

"How do these organs act upon the blood?

"All that is known of the course of that portion of the blood which flows through an organ of secretion is, that it passes into arteries of extreme minuteness, which are spread out upon the external walls of the elementary secreting bodies, and which, as far as they can be traced, pass into capillary veins,—nowhere terminating by open mouths—nowhere presenting visible outlets or pores; their contents probably transuding through their thin and tender coats by the process of endosmose.

"As it is flowing through these capillary arteries, the blood undergoes the transformations effected by secretion, forming—1. The fluids which are added to the aliment, and which accomplish its solution, and change it into chyme. 2. The fluids which are added to the chyme to convert it into chyle, and both to chyle and lymph, to assist in their assimilation. 3. The fluids which, poured into the cavities, facilitate automatic or voluntary movements. 4. The fluids which serve as the media to the organs of the senses by which external objects are conveyed to the sentient extremities of the nerves for their excitement. 5. The fluids which, deposited at different points of the cellular tissue, when more aliment is received than is needed, serve as reservoirs of nutriment to be absorbed when more aliment is required than can be afforded by the digestive organs. 6. The fluids which are subsequently to be converted into solids. 7. The fluids which are eliminated from the common mass, whether of fluids or solids, to be carried out of the system as excrementitious substances. 8. In addition to all these substances, which are indispensable to the preservation of the individual, those which are necessary to the perpetuation of the species.

"In order to form any conception of the mode in which the secreting organs act upon the blood, so as to elaborate from it such diversified substances, it is necessary to consider the chemical composition of the different products of secretion, and the degrees in which they really differ from each other, and form the common mass of blood out of which they are eliminated.

"By chemical analysis, it is established that all the substances which are formed from the blood by the process of secretion are either water, albumen, mucus, jelly, fibrin, oil, resin, or salts; and, consequently, that all the secretions are either aqueous, albuminous, mucous, gelatinous, fibrinous, resinous, oleaginous, or saline.

"1. AQUEOUS SECRETIONS.—From the entire surface of the skin, and also from that of the lungs, there is constantly poured a quantity of water, derived from the blood, mixed with some animal matters, which, however, are so minute in quantity that they do not communicate to the aqueous fluid any specific character.

"2. ALBUMINOUS SECRETIONS.—All the close cavities, as the thorax, the abdomen, the pericardium, the ventricles of the brain, and even the interstices of the cellular tissue, are constantly moistened by a fluid which is termed serous, because it is derived from the serum of the blood. This serous fluid consists of albumen in a fluid form, and it differs from the serum of the blood chiefly in containing in equal volumes a smaller proportion of albumen. Membranes of all kinds consist essentially of coagulated albumen; and the albumen, as constituting these tissues, differs from albumen as existing in the serum of the blood only in being unmixed with extraneous matter, and in being in a solid form.

"3. Mucous Secretions.—As all the close cavities, or those which are protected from the external air, are moistened with a serous fluid, so all the surfaces which are exposed to the external air, as the mouth, the nostrils, the air-passages, and the whole extent of the alimentary canal, are moistened with a mucous fluid. Mucus does not exist already formed in the blood. It is always the product of a gland. Some of the mucous glands are among the most elaborate of the body; still the main action of the gland seems to be to coagulate the albumen of the blood; for the basis of mucus is coagulated albumen. The fluid that lubricates the mucous surfaces in their whole extent, the saliva, the gastric juice, the tears, the essential part of the fluid formed in the testes and in the ovaria, are mucous secretions. Hence the most complex and elaborate functions of the body, respiration, digestion, reproduction, are intimately connected with the mucous secretions; nevertheless, as far as regards their chemical nature, the mucous differ but slightly from the albuminous secretions; and it is probable that a slight change in the secreting organ is sufficient to convert the one into the other. By the irritation of mercury on the salivary glands, the saliva, properly of a mucous, is sometimes converted into a substance of an albuminous nature; and irritation in some of the serous membranes occasionally causes them to secrete a mucous fluid.

"4. Gelatinous Secretions.—The proximate principle termed jelly abounds plentifully in several of the solids of the body, and more especially in the skin; but jelly does not exist already formed in the blood. Yet it is not the product of a gland, neither is there any known organ by which it is formed. Out of the body, albumen is capable of being converted into jelly by digestion in dilute nitric acid: this conversion is probably effected by the addition of a portion of oxygen to the albumen. Albumen contains more carbon and less oxygen than jelly; the proportions of hydrogen and nitrogen in both being nearly the same. According to MM. Gay Lussac and Thénard, the elements of albumen and jelly are—

	Carbon.	Oxygen.	Hydrogen.	Nitrogen.
Albumen . . .	52.883	23.872	7.54	15.765
Jelly . . .	47.881	27.227	7.914	16.988

The conversion of albumen into jelly is incessantly going on in the system; and the process accomplishes most extended and important uses. In the lungs, at the moment of inspiration, oxygen enters into the blood in a state of loose combination: but in the system, at every point where the conversion of albumen into jelly takes place, oxygen probably enters into a state of chemical combination with albumen; and the new proximate principle, jelly, is the result. The agent by which this conversion is effected appears to be the capillary artery: the primary object of the action is the production of a material necessary for the formation of the tissues of which jelly constitutes the basis, as the skin; but a secondary and most important object is the production of animal heat; the carbon that furnishes one material of the fire being given off by the albumen at the moment of its transition into jelly; and the oxygen that furnishes the other material of the fire being afforded to the blood at the moment of inspiration. This view affords a beautiful exposition of the reason why jelly forms so large a constituent of the skin in all animals. The great combustion of oxygen and carbon, the main fire that supports the temperature of the body, is placed where it is most needed, at the external surface.

"5. Fibrinous Secretions.—The pure muscular fibre, or the basis of the flesh, is identical with the fibrin of the blood. It contains a larger proportion of nitrogen, the peculiar animal principle, and is consequently more highly animalized, than the preceding substances. It appears to be simply discharged from the circulating blood by the capillary arteries, and deposited in its appropriate situation; no material change in its constitution being, it would seem necessary to fit it for its office.

"A third most important agent in the process of secretion is some influence derived from the nervous system.

"1. It is proved, by direct experiment, that the destruction of the nervous apparatus, or of any considerable portion of it, stops the process of secretion. By experiments performed by Mr. Brodie, it is ascertained that the secretion of the urine is suspended by the removal or destruction of the brain, though the circulation be maintained in its full vigour by artificial respiration.

"2. The section, and still more the removal, of a portion of the sentient nerves of the stomach (the par vagum or eighth pair), according to some experimentalists, deranges and impedes, according to others, totally arrests, the process of digestion."

ORGANIC AND ANIMAL LIFE.—By organic life is meant the life of the substances of the body; by animal life is meant the power of the will and the mind over the whole, by the aid of the nervous system. As will be seen in these extracts from Dr. Smith, the substance of the body may have life in it for a short period when the animal power has left it.

"The organs and functions of the animal life are incapable of continuity of action. No voluntary muscle can maintain its action beyond a given time; no effort of the will can keep it in a state of uninterrupted contraction; relaxation must alternate with contraction; and even this alternate action cannot go on long without rest. No organ of sense can continue to receive impression after impression without fatigue. By protracted exertion the ear loses its sensibility to sound, the eye to light, the tongue to savour, and the touch to the quality of bodies about which it is conversant. The brain cannot carry on its intellectual operations with vigour beyond a certain period; the trains of ideas with which it works become, after a time, indistinct and confused; nor is it capable of re-acting with energy until it has remained in a state of rest proportioned to the duration of its preceding activity.

"And this rest is sleep. Sleep is the repose of the senses, the rest of the muscles, their support and sustenance. What food is to the organic, sleep is to the animal life. Nutrition can no more go on without aliment, than sensation, thought, and motion without sleep.

"But it is the animal life only that sleeps: death would be the consequence of the momentary slumber of the organic. If, when the brain betook itself to repose, the engine that moves the blood ceased to supply it with its vital fluid, never again would it awake. The animal life (*the power of the will and mind*) is active only during a portion of its existence; the activity of the organic life (*substance of the body*) is never for a moment suspended: and in order to endow its organs with the power of continuing this uninterrupted action, they are rendered incapable of fatigue: fatigue, on the contrary, is inseparable from the action of the organs of the animal life (*the mind and will*); fatigue imposes the necessity of rest; rest is sleep, and sleep is renovation.

"Between all the functions of the organic life there is a close relation and dependence. Without the circulation there can be no secretion; without secretion, no digestion; without digestion, no nutrition; without nutrition, no new supply of circulating matter, and so through the entire circle. But the functions of the animal life are not thus dependent on each other. One of the circle may be disordered without much disturbance of the rest; and one may cease altogether, while another continues in vigorous action. Sensation may be lost, while motion continues: and the muscle may contract, though it cannot feel. One organ of sense may sleep while the rest are awake. One intellectual faculty may be in operation while others slumber. The muscle of volition may act, while there is no consciousness of will. Even the organs of the voice and of progression may perform their office while the sensorium is deeply locked in sleep.

"The two lives are born at different periods, and the one is in active operation before the other is even in existence. The first action observable in the embryo is a minute pulsating point. It is the young heart propelling its infant stream. Before brain, or nerve, or muscle can be distinguished, the heart is in existence and in action; that is, the apparatus of the organic function of the circulation is built up and in operation before there is any trace of an animal organ. Arteries and veins circulate blood, capillary vessels receive the vital fluid, and out of it form brain and muscle, the organs of the animal, no less than the various substances that compose the organs of the organic life. The organic is not only anterior to the animal life, but it is by the action of the organic that existence is given to the animal life. The organic life (*substance*) is born at the first moment of existence; the animal life (*will and mind*) not until a period comparatively distant—the epoch emphatically called the period of birth, namely, the period when the new being is detached from its mother; when it first comes into contact with external objects; when it carries on all the functions of its economy by its own organs, and consequently enjoys independent existence.

"The functions of the organic life are perfect at once. The heart contracts as well, the arteries secrete as well, the respiratory organs work as well, the first moment they begin to act as at any subsequent period. They require no teaching from experience, and they profit nothing from its lessons. On the contrary, the operations of the brain, and the actions of the voluntary muscles, feeble and uncertain at first, acquire strength by slow degrees, and attain their ultimate perfection only at the adult age. How indistinct and confused the first sensations of the infant! Before it acquire accuracy, precision, and truth, how immense the labour spent upon perception! Sensations are succeeded by ideas; sensations and ideas coalesce with sensations and ideas; combinations thus formed suggest other combinations previously formed, and these a third, and the third a fourth, and so is constituted a continuous train of thought. But the infantile associations between sensation and sensation, between idea and idea, and between sensations and ideas, are, to a certain extent, incorrect, and to a still greater extent inadequate; and the misconception necessarily resulting from this early imperfection in the intellectual operations is capable of correction only by subsequent and more extended impressions. During its waking hours, a large portion of the time of the infant is spent in receiving impressions which come to it every instant from all directions, and which it stores up in its little treasury; but a large portion is consumed in the far more serious and difficult business of discrimination and correction. (*The soul, or immortal part, is developing its powers as the organism of the brain comes to maturity.*)

"The organic life may exist after the animal life has perished. The animal life is extinguished when sensation is abolished, and voluntary motion can be performed no more. But disease may abolish sensation and destroy the power of voluntary motion, while circulation, respiration, secretion, excretion, in a word, the entire circle of the organic functions continues to be performed. In a single instant apoplexy may reduce to drivelling fatuity the most exalted intellect, and render powerless and motionless muscles of gigantic strength; while the action of the heart and the involuntary contractions of the muscles may not only not be weakened, but may act with preternatural energy. In a single instant apoplexy may even completely extinguish the animal life, and yet the organic may go on for hours, days, and even weeks; while catalepsy, perhaps the most singular disease to which the human frame is subject, may wholly abolish sensation and volition, while it may impart to the voluntary muscles the power of contracting with such unnatural energy and continuity, that the head, the trunk, the limbs may become immovably fixed in whatever attitude they happen to be at the moment the paroxysm comes on. In this extraordinary condition of the nervous system, however long the paroxysm last, and however complete the abolition of consciousness, the heart continues to beat, and the pulse to throb, and the lungs to respire, and all the organic organs to perform their ordinary functions. Dr. Jebb gives the following description of the condition of a young lady who was the subject of this curious malady:—

"'My patient was seized with an attack just as I was announced. At that moment she was employed in netting; she was in the act of passing the needle through the mesh; in that position she became immovably rigid, exhibiting, in a pleasing form, a figure of death-like sleep, beyond the power of art to imitate, or the imagination to conceive. Her forehead was serene, her features perfectly composed. The paleness of her colour, and her breathing, which at a distance was scarcely perceptible, operated in rendering the similitude to marble more exact and striking. The position of her fingers, hands, and arms was altered with difficulty, but preserved every form of flexure they acquired: nor were the muscles of the neck exempted from this law, her head maintaining every situation in which the hand could place it, as firmly as her limbs.'

"In this condition of the system the senses were in a state of profound sleep; the voluntary muscles, on the contrary, were in a state of violent action; but this action not being excited by volition, nor under its control, the patient remained as motionless as she was insensible. The brain was in a state of temporary death; the muscle in a state of intense life. And the converse may happen: the muscle may die, while the brain lives; contractility may be destroyed, while sensibility is perfect; the power of motion may be lost, while that of sensation may remain unaffected. A case is on record which affords an illustration of this condition of the system. A woman had been for some time confined to her bed, labouring under severe indisposition. On a sudden she was deprived of the power of moving a single muscle of the body; she attempted to speak, but she had no power to articulate; she endeavoured to stretch out her hand, but her muscles refused to obey the commands of her will; yet her consciousness was perfect, and she retained the complete possession of her intellectual faculties. She perceived that her attendants thought her dead, and was conscious of the performance upon her own person of the services usually paid to the dead; she was laid out, her toes were bound together, her chin was tied up; she heard the arrangements for her funeral discussed, and yet she was unable to make the slightest sign that she was still in the possession of sense, feeling, and life.

"In one form of disease, then, the animal life, both the sensitive and the motive portions of it, may perish; and in another form of disease, either the one or the other part of it may be suspended, while the organic life continues in full operation: it follows that the two lives, blended as they are, are distinct, since the one is capable of perishing without immediately and inevitably involving the destruction of the other.

"And, finally, as the organic life is the first born, so it is the last to die; while the animal life, as it is the latest born, and the last to attain its full development, so it is the earliest to decline, and the first to perish. In the process of natural death, the extinction of the animal is always anterior to that of the organic life. Real death is a later, and sometimes a much later event than apparent death. An animal appears to be dead when, together with the abolition of sensation and the loss of voluntary motion, respiration, circulation, and the rest of the organic functions can no longer be distinguished; but these functions go on some time after they have ceased to afford external indications of their action. In man, and the warm-blooded animals in general, suspension or submersion extinguishes the animal life, at the latest, within the space of four minutes from the time that the atmospheric air is completely excluded from the lung; but did the organic functions also cease at the same period, it would be impossible to restore an animal to life after apparent death from drowning and the like. But, however complete and protracted the abolition of the animal functions, reanimation is always possible as long as the organic organs are capable of being restored to their usual vigour. The cessation of the animal life is but the first stage of death, from which recovery is possible; death is complete only when the organic, together with the animal functions, have wholly ceased, and are incapable of being re-established.

"In man, the process of death is seldom altogether natural. It is generally rendered premature by the operation of circumstances which destroy life otherwise than by that progressive and slow decay which is the inevitable result of the action of organized structure. Death, when natural, is the last event of an extended series, of which the first that is appreciable is a change in the animal life and in the noblest portion of that life. The higher faculties fail in the reverse order of their development; the retrogression is the inverse of the progression, and the noblest creature, in returning to the state of non-existence, retraces step by step each successive stage by which it reached the summit of life.

"And now the processes of life at an end, the body falls within the dominion of the powers which preside universally over matter; the tie that linked all its parts together, holding them in union and keeping them in action, in direct opposition to those powers dissolved, it feels and obeys the new attractions to which it has become subject; particle after particle that stood in beautiful order fall from their place; the wonderful structures they composed melt away: the very substances of which those structures were built up are resolved into their primitive elements; these elements, set at liberty, enter into new combinations, and become constituent parts of new beings; those new beings in their turn perish; from death springs life, and so the changes go on in an everlasting circle.

"RELATION BETWEEN THE PHYSICAL CONDITION AND HAPPINESS.—Life depends on the action of the organic organs. The action of the organic organs depends on certain physical agents. As each organic organ is duly supplied with the physical agent by which it carries on its respective process, and as it duly appropriates what it receives, the perfection of the physical condition is attained; and according to the perfection or imperfection of the physical condition, supposing no accident interrupt its regular course, is the length or the brevity of life.

"It is conceivable that the physical condition might be brought to a high degree of perfection, the mind remaining in a state but little fitted for enjoyment; because it is necessary to enjoyment that there be a certain development, occupation, and direction of the mental powers and affections; and the mental state may be neglected, while attention is paid to the physical processes. But the converse is not possible. The mental energies cannot be fully called forth while the physical condition is neglected. Happiness presupposes a certain degree of excellence in the physical condition; and, unless the physical condition be brought to a high degree of excellence, there can be no such development, occupation, and direction of the mental powers and affections as is requisite to a high degree of enjoyment.

"That state of the system in which the physical condition is sound is in itself conducive to enjoyment; while a permanent state of enjoyment is in its turn conducive to the soundness of the physical condition. It is impossible to maintain the physical processes in a natural and vigorous condition, if the mind be in a state of suffering. The bills of mortality contain no column exhibiting the number of persons who perish annually from bodily disease, produced by mental suffering; but every one must occasionally have seen appalling examples of the fact. Every one must have observed the altered appearance of persons who have sustained calamity. A misfortune, that struck to the heart, happened to a person a year ago; observe him some time afterwards; he is wasted, worn, the miserable shadow of himself; inquire about him at the distance of a few months, he is no more.

"THE DIVISION OF HUMAN LIFE into periods or epochs is not an arbitrary distinction, but is founded on constitutional differences in the system, dependent on different physiological conditions. The periods of infancy, childhood, boyhood, adolescence, manhood, and old age, are distinguished from each other by external characters, which are but the outward signs of internal states. In physiological condition, the infant differs from the child, the child from the boy, the boy from the man, and the adult from the old man, as much in physical strength as in mental power. There is an appointed order in which these several states succeed each other; there is a fixed time at which one passes into another.

"In Mr. Finlaison's report, printed by the House of Commons on the 30th of March, 1829, there are six original observations on the mortality of as many separate sets of annuitants of the male sex.

"From an examination and comparison of these observations, it appears—1st. That the rate of mortality falls to a minimum at the close of the period of childhood. 2nd. That from this point the mortality rises until the termination of adolescence or the commencement of adult age. 3rd. That from the commencement of adult age the mortality again declines, and continues to decline to the period of perfect maturity. And, 4th. That from the period of perfect maturity, the mortality rises, and uniformly, without a single exception, returns, at the age of forty-eight, to the point at which it stood at the termination of adolescence. These results clearly indicate that certain fixed periods are marked by nature as epochs of human life; and that at the date of the recorded facts which furnish the data for these observations, and as far as regards the class of persons to which they relate, the age of forty-eight was the exact point at which the meridian of life was just passed, and a new epoch began.

"The observation is founded on the large mass of 9,347 lives and 4,870 deaths. From this observation, it appears that, at the age of thirteen, the mortality out of a million is 5,742. At the age of twenty-three, it is 15,074, being 9,332 more than at the close of childhood. At the age of thirty-four, the period of complete manhood, it falls to 11,707, being 3,367 less than at the close of adolescence. At the age of forty-eight, the mortality returns to 14,870,—all but identically the same as at twenty-three, the adult age. From the age of forty-eight, when, as has been stated, life just begins to decline from its meridian, the mortality advances slowly, but in a steady and regular progression. Thus, at the age of fifty-eight it is 29,185, being 14,315 more than at the preceding decade, or almost exactly double. At the age of sixty-eight, it is 61,741, being 32,556 more than at the preceding decade, or more than double. At the age of seventy-eight, it is 114,255, being 52,514 more than at the preceding decade. At the age of eighty-eight, it is 246,803, being 132,548 more than at the preceding decade.

"During the first year of infancy, as has been shown, the mortality out of a million is 180,492. At the extreme age of eighty-four, it is 178,130, very nearly the same as in the first year of infancy. Greatly as the mortality of all the other epochs of life is affected by country, by station, by a multitude of influences arising out of these and similar circumstances, yet the concurrent evidence of all observation shows that at this and the like advanced ages the mean term of existence is nearly the same in all countries, at all periods, and among all classes of society. Thus, among the nobility and gentry of England, the expectation of life at eighty-four is four years: among the poor fishermen at Ostend, it is precisely the same. M. Deparoieux, who wrote just ninety years ago, establishes the expectation of life at that time in France, at the same age, to have been three and a half years: and Halley, who wrote 120 years ago, and whose observations are derived from documents which go back to the end of the seventeenth century, states the expectation of life at eighty-four to be two years and nine months.

"From these statements, then, it is obvious, that from the termination of infancy at three years of age, a decade of years brings childhood to a close, during which the mortality, steadily decreasing, comes to its minimum. Another decade terminates the period of adolescence, during which the mortality as steadily advances. A third decade changes the young adult into a perfect man, and during this period, the golden decade of human life, the mortality again diminishes; while, during another decade and a half, the mortality slowly rises, and returns at the close of the period to the precise point at which it stood at adult age. Thus the interval between the period of birth and that of adult age includes a term of twenty-three years. The interval between the period of adult age and that when life just begins to decline from its meridian, includes a term of twenty-four years: consequently, a period more than equal to all the other epochs of life from birth to adult age is enjoyed, during which mortality makes no advance whatever. The term of years included in the several epochs that intervene between birth and adult age is rigidly fixed. In England, for example, the expectation of life at the present day, for the mass of the people, as compared with that of the mass at Ostend, which, as has been shown, is the same as that of the whole of Europe, is as follows:—

At birth ..	41½ years.	At 32 ..	32 years.	At 57 ..	16 years.
12 ..	46¾ ,,	37 ..	28¾ ,,	62 ..	13 ,,
17 ..	41½ ,,	42 ..	25½ ,,	67 ..	10½ ,,
22 ..	38⅜ ,,	47 ..	22¼ ,,	72 ..	8 ,,
27 ..	35¼ ,,	52 ..	19 ,,	77 ..	6 ,, .

"It should be borne in mind, that the females of the mass exceed in duration the lives of the males at every age by two or three years.

"The following may be assumed as the maximum average duration of human life' of both sexes collectively:—

50 Yrs.	55 Yrs.	60 Yrs.	65 Yrs.	70 Yrs.	75 Yrs.	80 Yrs.	85 Yrs.
23	19	16	13	11	8	6	3"

Dr. Horner, in "Three Letters addressed to a Non-Medical Friend," gives a very plain account of the absorbent lymphatic system, which I quote. The letters were addressed to myself.—J. S.

"Allow me, in brief recapitulation, to bring again before you the principal circumstances and facts which are more fully given in the volume alluded to, (*On the Nature of the Water Cure*). I again say, be not impatient of repetitions, as long as they bring before you useful and important knowledge: it serves the purpose of riveting it more firmly in your mind.

"You remember that I stated that mastication of food is the commencing part of the process of digestion; and that due care should be taken to make it as perfect as possible. I alluded to the value of good teeth, and to the proper use of them in slow and careful mastication of food. Again, I pointed out the source, the use, and the solvent power of the saliva, or spittle, in its mixing with the food, and in preparing it for the further action of the gastric juice in the stomach. You recollect, dear sir, that the food undergoes the first great change of its nature in the stomach, and *there* it becomes *chyme*, according to technical language. The word is Greek, and means a juice or fluid mass. It remains in the healthy stomach an average time of two or three hours, subjected to the specific action of that organ and its secretion, the much-talked of *gastric juice*. When it is fitted for the next movement downwards, the *chymous mass* passes through the lower opening of the stomach, called the pyloric orifice. We have here again a Greek word for the part, namely, *pyloros*, which means a *porter* or *doorkeeper*. The term is good, for no matter is allowed by it to pass forwards into the first bowel unless it be in a proper state for it. The *pyloros*, or *pylorus*, is usually very vigilant; that is, it is very sensitive. Indeed, it is endowed with an elective power suitable for its important office. Through this sensitive and elective power it will raise a commotion in the stomach, and cause vomiting, when anything of very important nature presents itself for admission into the first bowel, called the *duodenum*. This term, I told you, is of Latin origin, and means *twelve;* because, say the anatomists, its length is about twelve inches.

"Respecting this elective power, or peculiar sensibility of the pyloric orifice of the stomach, I have to apprise you that it is frequently much deranged and destroyed by the intemperate use of stimulants; so that it loses its healthy condition, and then allows improper matters to pass into the small bowels, to interfere with their important function, and thus to cause unhealthy chyle. Frequently also, from the same cause of intemperance, especially in the use of undiluted spirits or dram-drinking, this pyloric orifice becomes the seat of incurable and fatal disease, namely, schirrus or cancer. Under this disease the sensibility is morbidly increased, and constant vomiting takes place as soon as the contents of the stomach reach it for admission into the duodenum. On examination of such cases after death, I have usually found the part ulcerated, but this does not always take place. Napoleon Bonaparte died of this disease; but he had an hereditary predisposition to it from his father, who also died of it. Napoleon had too much shrewdness, common sense, and love of life to stultify himself by those habits which so often cause cancer of the pyloric orifice of the stomach.

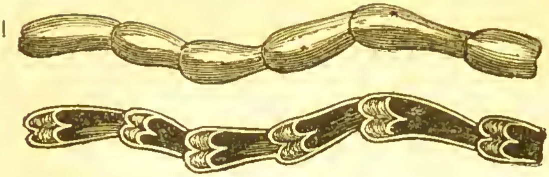
"When the alimentary mass has passed into the duodenum, it is called *chyle* by nearly all physiologists. This is also a Greek term, meaning *juice*, or *sap*, or *fluid squeezed out*. I have ventured, on just grounds, I think, to continue the name of *chyme*, for reasons given in the other book. However, it does not much matter about the name. You must keep in mind, however, that the mass undergoes great change in the duodenum, where it meets and is mixed with two other fluid secretions of particular properties. One is the bile, which is brought from the liver by a duct or canal; the other fluid is the *pancreatic juice*, brought from the *pancreas* by another duct. Besides these two fluids or secretions, there is also the special fluid which is secreted or formed by the lining membrane of the duodenum, and which is of a very solvent nature. The alimentary mass soon passes onwards into the next part of the bowels, called the *jejunum*, a name given from the Latin, and meaning *fasting*, because the bowel is always empty on dissection, after death. The mass is next passed forwards into the *ilium*, the next and last of the small bowels. These are so called because of their comparatively small dimensions. In the two latter ones, the jejunum and ilium, is chiefly absorbed from the alimentary mass the *milk-like* fluid to which alone I would apply the term *chyle*, and not to the whole mass from which it is taken, as do other physiologists. This chyle is absorbed by the absorbent vessels which in this place and office are denominated *lacteals*, because of their *milk-like* contents, which they absorb from the alimentary mass. I shall say more about these lacteals anon. Here we must leave the remaining mass, which takes its course downwards into the larger bowels called the cæcum, the colon, and the rectum. You must keep in mind that the soluble or fluid part of this alimentary mass is absorbed by veins into the blood; whilst the insoluble matter, chiefly, is passed onwards and downwards. This absorption is not, however, to the extent that some writers would have us to suppose. I would just remind you that the liquid part of the fæces, or excrementitious matter, is chiefly secreted from the blood on the internal surface of the large intestine called the colon, where the fæces are first formed.

"To return to the lacteals or lacteal absorbents. The chyle is the nutritious part of the alimentary mass, the essence of aliment. It is conveyed from the small intestines by these lacteals to a kind of oval-shaped bag, the reservoir of the chyle, and therefore called, in technical language, the *receptaculum chyli*. It rests on the front of the spine of the loins, and receives or is formed by the termination of the large trunks of these lacteals, and the trunk of the lymphatic absorbents of the lower extremities. In this reservoir or receptacle, the chyle and the lymph carried by the lymphatics are mixed together. At its upper part it is formed into a large tube or duct, and then takes the name of *thoracic duct*, because its principal course is within the *thorax* or chest. It ultimately delivers its contents into the part of union between the left subclavian and the left jugular vein; and, being mixed with the venous blood, it soon arrives at the right side of the heart; and then into the lungs, to be there exposed to the assimilating influence of the oxygen of the atmospheric air inhaled.

"Let us glance at the effects of excessive eating on the human system in another direction. I mean the excess of *nitrogenous* or *azotized* elements. When the supply of such food becomes much beyond the wants of the system for the renewal of the muscular, nervous, and cellular tissues, you must not suppose that it can, in any way, be stored up in solid flesh, in the manner that non-nitrogenous food causes fat to be stored up. You must bear in mind that the increase of muscular substance depends on the exercise of the muscles. Certainly this increase cannot take place without a proportionate supply of plastic elements of food; but do remember that no degree of richness of blood, or amount of proteine plastic elements, can produce increase of muscular substance and muscular power. Remember that any accumulation of such nutritive matter in the blood can serve no purpose but that of evil, and to produce disease.

"We are constantly witnessing the fact that those who indulge in what is called high living, as to quantity and quality of food, are proportionately liable to disease and death. Those organs of the body which can serve, in a limited degree, to relieve it of excessive fulness and richness of blood through their functions of excretion, become disordered and diseased from excitement and over-action; especially the liver and the kidneys, the liver excreting hydro-carbonaceous elements, and the kidneys those of a nitrogenous nature. Of the catalogue of evil consequences are to be reckoned rheumatism, gout, apoplexy, and palsy, and various inflammatory diseases; and life itself is placed on a slippery foundation. Thus, dear sir, we too often see the advantages of riches insanely overbalanced by the things they are made to bring upon their possessors, whilst the sons and daughters of poverty and want have often the compensating blessings of health and long life. I need not tell you that not one of a thousand of the latter class duly appreciates the advantages he enjoys; for it is more of necessity than of choice that he is in such relation to the means of them.

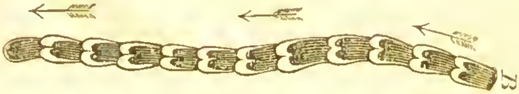
"The instrumentality or apparatus of the absorbent function has been termed *general* and *special*. Blood-vessels and membranes are the general apparatus. The special apparatus consists in a certain system of vessels exclusively for the purpose; these are the lacteals and the lymphatics; having also a certain system of glands in connexion. The lacteal absorbents have been already mentioned by me, as the means of removing the nutrient part of the food from the small intestines to the thoracic duct, by which it is conveyed, mixed up with the lymph, to be commingled again with venous blood; and, after due assimilation in the lungs, to constitute the nutrient part of arterial blood, for the purposes of nutrition. The lacteals are the special absorbents for their important office, as noticed above, and they arise from the internal surface of the small intestines. I wish you to keep in mind, dear sir, that the other special absorbents, the lymphatics, which carry a *water-like* fluid (and hence their name of *lymphatics; lympha* is a Latin word for water), are to be found in every tissue, both of the internal and external parts of the body. The structure of both kinds of absorbents is very similar to that of the veins, which also act as absorbents, in addition to their office of carrying dark and impure carbonised blood. The coats of the veins, however, are thicker and not so transparent as those of the lacteals and lymphatics. Here you have a view of an absorbent vessel in its internal and external surfaces.



A magnified view of an absorbent vessel. 1 represents the external surface, with the jointed appearance produced by the valves. 2 represents the same vessel laid open, showing the arrangement of the valves.

"When these absorbents are fully distended by their contents, they have a jointed appearance, as you see here. The point of each joint is caused by a pair of valves on the internal surface. Here, again, dear sir, is sunbeam evidence of design. These valves are evidently for the purpose of preventing the reflux or backward motion of the fluid within. You recollect that the same means answers the same end in the structure of the veins, and especially in the large ones of the lower extremities. It is this which gives a knotted appearance to the veins of some people, who suffer from varicose legs.

(The following engraving [B] shows the structure of the veins, with the provision to prevent the return of the blood in the same veins. It will be noticed that there is a perforation in the centre of the valve, and on the blood being forced back, it presses on the sides, and closes the centre perforation.—J. S.)



"Allow me to state to you further on this point, that the veins and absorbents have not, like the arteries, an impelling engine, as the heart, to force forwards their contents; therefore they need and have the auxiliary means of valves. The arteries have no valves, because they receive the impulse of the heart, with which they are connected at their outset in the aorta. They have, besides, an inherent power of circulating their own contents, arterial blood, which is the oxygenised, nutritious, and scarlet-coloured vital fluid.

"Doubtless, the lymphatic absorbents arise from every part of the body. I wish you to keep in mind that although, like veins, they anastomose with or open into each other, they do not, like them, proceed from small to larger branches, and from these branches to form large trunks. The absorbents, remember, continue of about the same size in their whole length, from their origin to their termination. Remember, also, that the chief of these lymphatic vessels are arranged in two orders or sets; one of them is on the external surface of the body, the other is disposed in a deeper course, and more especially to accompany the large trunks of blood-vessels.

"It is of importance that you remember that every lacteal and every lymphatic absorbent of the human body goes, in some part or other of its course, through the absorbent glands. These are called *conglomate*, in contradistinction to others called *conglomerate* glands, which are made up of a congeries or collection of smaller ones; whereas, these are single or one in substance. I must apprise you that the absorbent glands are small and usually oval-shaped bodies, and are enclosed in a membranous covering. I give a magnified view of them below.

"The glands of the lacteal absorbents, you recollect, are also called *mesenteric glands*, because they are located in the large and powerful membrane, the *mesentery*, which has its name from its principal office of retaining the intestines in their proper position. On page 378 I present you with a view of the absorbent glands of the lacteals, with part of the small intestine, and the receptaculum chyli, with the thoracic duct, &c.

"The glands of the lymphatic absorbents are of various sizes, and are placed in certain appropriate parts of the body. They are sometimes single, but more frequently they are in groups or masses, as in the axillæ or armpits, and in the groins, at the bending of the knee, and under the jaw-bone. They readily enlarge from irritating causes. When an absorbent gland inflames and enlarges, it is called a *bubo*, in professional language, which, in Greek, means a *swelling*.

FIG. I.

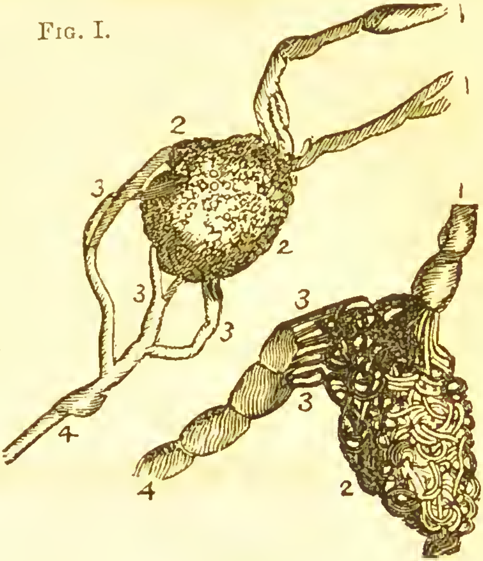


FIG. I.—1. Absorbent vessels, called *vasa inferentia*, entering (2) the gland. 3. Absorbent vessels emerging from the gland, called *vasa efferentia*, and forming (4) a common trunk.

FIG. II.—1. Trunk of absorbent vessel entering a gland. 2. Gland apparently composed entirely of convoluted vessels. 3. Vessels emerging from the gland, and forming (4) a common trunk.

FIG. II.

"The absorbent vessels which enter a gland are termed *vasa inferentia*, or in-going vessels. These enter at the part of it most distant from the heart. Again, those which leave it are termed *vasa efferentia*, or out-going vessels, and are seen to emerge on the side next to the heart, and are fewer in number than those which enter it. The whole substance of an absorbent gland appears to be made up of the *vasa inferentia* convoluted or rolled up on each other, and having free communication with each other.

FIG. III.

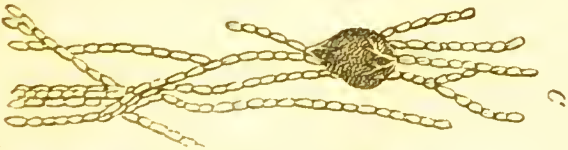
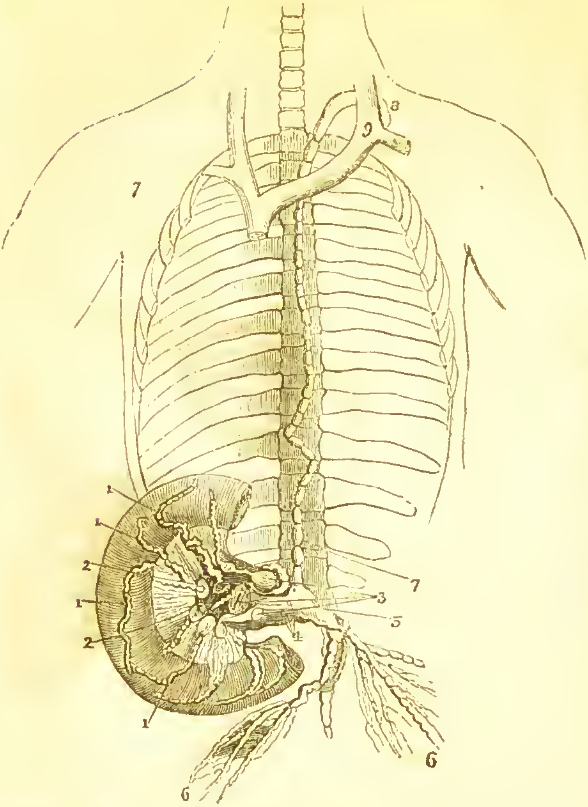


FIG. III.—Small lymphatic vessels passing their contents through a gland.

"Although, as I have already stated, the absorbents have no impelling organ to send forwards their contents, yet the fluid they contain is known to move onwards with considerable force; and we reasonable suppose, therefore, that they possess a vital and inherent power for the purpose.

"Again I counsel you, dear sir, to remember the particular facts and circumstances noticed by me in this brief account of the absorbent system; for, assuredly, the subject has a constant bearing on the health and disease of the human body and for success of treatment the practitioner must understand and



1. Lacteal vessels emerging from the mucous surface of the intestines. 2. First order of mesenteric glands. 3. second order of mesenteric glands. 4 The great trunks of the lacteals emerging from the mesenteric glands, and pouring their contents into (5) the receptacle of the chyle. 6. The great trunks of the lymphatic or general absorbent system terminating in the receptacle of the chyle. 7. The thoracic duct. 8. Termination of the thoracic duct at (9) the angle formed by the union of the internal jugular vein with the subclavian vein

VIEW OF THE COURSE OF THE THORACIC DUCT, FROM ITS ORIGIN TO ITS TERMINATION.

think of it. There are yet other and very interesting particulars which I must next bring before you. If I refer again to some things already mentioned, the repetition will serve, I say, to impress your mind more deeply on useful knowledge.

"Mark, then, in reference to the special office of the lacteals to absorb chyle from the alimentary mass in the small intestines, that they scarcely ever absorb any other fluid matter, to whatever extent it may be presented to them. These lacteals, then, are endowed with a *special sensibility* for their purpose, and which makes them refuse to take up anything but chyle. You may call it a *nervous power of election*. But this, dear sir, is one instance of the like innumerable ones in the human system, where *special sensibility* belongs to organs and parts for their *special purposes*; and is, indeed, beyond the power of the greatest intellect to understand. It is a part of the wonderful endowments which are absorbed in the animal economy; but no more is known of them. They are truly of the greatest moment for health, and for life itself. I shall again meet with this subject in pursuing our principal ones of health and disease, and its treatment; and I think that I shall have the opportunity of giving you further illustration of it.

"The lymphatics which are distributed over the whole human frame are not limited to the absorption of a certain fluid, as the lacteals are. The lymphatics absorb matters of various kinds, but it is always of an organized nature, and passing through its stages of purification or fitness for the purposes of life. It was formerly believed that the contents of lymphatics were of a refuse nature, but this is now found to be erroneous.

"The absorbent glands are supposed to exert a certain influence on the fluids which flow through them in the absorbent vessels, and to assimilate those fluids more nearly to the nature of the blood. That they do exert a power of altering the nature of such fluids is supported by the fact that the injection of even bland fluids directly into the blood, without their passage through these glands, is often of most serious consequence: even fatal effects have followed.

"There are two organic functions of the human body, of which I have not written to you, dear sir. They are ever in intimate relation with the chief subjects of these letters. In meeting with the names of these two processes, non-medical readers are frequently puzzled to understand their true nature and different uses. I allude to secretion and excretion. I can only undertake, in my limited space, to make a few brief remarks concerning them, yet it will suffice for the end in view.

"The word *secretion* is from the Latin word *secreno*, to separate, to sever, to put asunder or apart. The entire matter of the human body is literally secreted or formed from the blood, which is formed from food, with the aid of air, water, heat, electricity, and light. These things have been repeatedly explained to you. But the term *secretion* is used in a more special sense, and is applied to certain matters, both fluid and solid, which are secreted or formed by certain parts of the body, called *secreting organs* or *instruments*. The principal ones are glands of various sizes, and for various purposes; and serous and mucous membranes also form extensive secreting surfaces, which perform functions of great importance for the health and well-being of the animal economy.

"I must not forget to tell you that the word secretion was first used on the erroneous supposition that it was literally and only a separation of different matters from the blood, in which they existed. The truth is, that they are formed or elaborated out of its constituent elements. The liver secretes, or elaborates, or forms bile from the carbonized and impure venous blood, which is carried through it for the purpose. Again, the breasts of the mother secrete or elaborate milk from the nutritious arterial blood circulating through them for the purpose. The stomach, by the apparatus on its lining membrane, secretes the gastric juice. The kidneys secrete urine. The salivary glands in and around the mouth secrete saliva. The wax of the ear is secreted by a suitable apparatus on its internal surface.

"You must keep in mind that all matters, fluid and solid, which are produced to serve some useful purpose in the human body, are the products of secretion. And mark you all matters which are separated from the body, to be removed as useless or noxious, are also the products of secretion. But they are called *excretions*, because they are separated from the organized substance of the body by similar processes, for the purpose of their removal from the system. Excretion is a particular form of secretion. The distinguishing difference between the two processes is, that in excretion the matter separated is either noxious or useless, and must be removed from the body; the matter separated by secretion has to serve some useful purpose in the body.

"I cannot explain to you the real nature or mode of performance of secretion; for, like that of many others of the animal system, it is unknown. It is certainly performed by the joint means of arteries, veins, nerves, and absorbents. The chief agency is, doubtless, that of the *nervous power*, and may be of a modified kind for the purpose. Membranes become the seat of secretion, and we see a great variety of its products. The membranes which line the large and closed cavities of the human body are termed *serous membranes*, because the fluid which they secrete, and which preserves their proper and moistened condition, is *serum*. I mean the cavities of the chest and of the abdomen.

"Again, there is the *synovial membrane*, which lines the interior surface of the joints, and secretes *synovia*, a glairy fluid which is useful and necessary for locomotion.

"Then, you must consider the most extensive membrane of the body, which is called the *mucous membrane*. It lines the open cavities and canals of the body—the mouth, the stomach, and intestines; also the air-passages and the lungs. This mucous membrane secretes mucus, which adheres to its surface, and keeps it in a suitable state of moisture.

"An Italian physiologist called Malpighi, and another called Ruysh, who flourished at Amsterdam at the same time, and Müller of Berlin, all these narrowly investigated the minute structure of the secreting apparatus, and formed certain doctrines on the nature and uses of secreting sacs, and follicles, and tubes: but they differed in their opinions. Nevertheless, it is established now, that follicles, cells, and tubes constitute the principal apparatus of secretion, with some variety of arrangement of the same.

"Sometimes the apparatus or means of secretion consists in simply extended membrane; and a fine network of minute or capillary arteries, nerves, and absorbents is stretched over its secreting surface; and by the specific action of these the matter secreted is separated from the blood.

"Yet you are to keep in mind, that there are the other forms of apparatus for the purpose, namely, cryptæ, or small pits; follicles, or small bags; cœca, or small pouches; tubuli, or small tubes; which also serve for retaining the matter for a while, to be supplied according to the wants of the system.

"When these cryptæ, follicles, cœca, and tubuli are collected into close contact, and have their necessary arteries and nerves inclosed with them in a common membrane, and as one mass, they constitute a secreting gland. You are to consider a secreting gland as a collection of these secreting bodies connected by cellular tissue, and enveloped in a common membranous covering, and thus forming a distinct organ of secretion. Such are the liver, the pancreas, the spleen, and the kidneys.

"There are very many interesting particulars in connexion with the present subject; but my limited space allows not of further particularisation. I must not leave it, however, without some notice to you of the extent of secreting apparatus. Think, that wherever nutrition is carried on, there, also, is secretion and its apparatus. The extent cannot be correctly stated. All the internal surfaces are studded with secreting bodies. The skin is covered with them, for the secretion of insensible perspiration; also for that of the oily matter which gives to it its softness. Again, the hairs are produced by a secreting process. But further, think of the great organs of the body, the liver, the lungs, the pancreas, and spleen: also the brain. Again, think of the organs of the senses, the eyes, the nose, the tongue, and the ears: nay, every point of the body, and even the bones, have innumerable organs of secretion.

"I wish you, dear sir, ever to keep in mind, that the great and indispensable agent in this process or function of secretion is *organic nervous power*: this is undoubted. Just, in familiar illustration of the fact, let me call your attention to what you are already aware of. You know that the sight, and even the thought itself, of agreeable food, fills the mouth with a secretion of saliva; in common parlance, it *makes the mouth water*. Again, music or agreeable society at dinner, or other meal, increases the appetite, and favours digestion. You well know, and I well know from experience, that disagreeables of any kind, affecting the mind through the brain and nerves of animal life, and, through these, the nerves of organic life, destroy the appetite of the most hungry man: the secretion of gastric juice is excited by the causes of agreeable kind, whilst it is arrested by the contrary.

"Again, you well know that grief causes a flow of tears; in other words, it causes an increased secretion of tears by the lachrymal glands. Fear will cause an increased secretion of urine. But, above all, how often have I known the fine maternal feelings which bind woman's heart to her offspring called into active exercise by the cry of her child! That cry, or the sight of her child, will at once fill her breasts with milk. Nay, it is a well-known fact, that the woman of strong maternal feelings has had the secretion of milk produced by an infant's cry when she has heard it in after years, and long past her own period of child-bearing.

"The imagination can effect secretion. Dr. S. Smith mentions the case of a female who had a great aversion to calomel. She was taking it in minute doses, unknown to herself. She was told of it, and was immediately salivated. On being persuaded that she had not taken any, the salivation ceased. Again she was told that she was taking it, the salivary glands were again excited to excessive action and salivation. In proof that it was purely the work of imagination, there was no redness of the gums or swelling of them, which always is the case in the action of calomel.

"Allow me, dear sir, to conclude this very interesting subject of secretion, to which your earnest letters have led me, by a few remarks on another point which crosses my mind regarding it. I cannot give you any satisfactory explanation of it; but how is it that, from the same vital fluid, the blood, the same kind of secreting apparatus produces the secreted matters according to the specific purposes to be served by them; and produced, too, by the same nervous power? How is it, I mean, that the breasts of the mother secrete the bland and nutritious fluid called milk, which is so suitable for infancy, and not another fluid? How is it that the liver secretes bile, and not urine? or how that the kidneys secrete urine and not bile, and so on? These are of the many *arcana*, the secret things of animal organization, which no human mind will ever penetrate. However, in reply to such questions, we may point to a difference of structure or texture of those several organs of secretion. Nevertheless, there is a cause which is, doubtless, beyond the ken of man. We see enough, however, to fill us with adoring admiration of that wisdom which is infinite, and of that design and beneficent care which incessantly provides for the well-being of man.

"We must now take a very brief consideration of the other function, namely, *excretion*. I have already informed you that this is only a particular form of *secretion*. Different matters contained by organized bodies, vegetable and animal, are continually thrown off by them to enter into other combinations, and to constitute part of the matter of the external world around us. Such rejected matters of the human body are called *excretions*. The function for the purpose is that of *excretion*.

"I must aim at the strictest brevity in treating of this form of secretion. I keep before my mind's eye the essential points in closest connexion with the chief subjects of these letters on health, disease, and its treatment. I aim at a statement of such things as bear most for illustrating these to your non-medical mind.

"There are five organs, dear sir, belonging to the human body, which may be said to be decidedly excretory in their functions; that is, which serve the purpose of separating those matters which are termed excrementitious, and which are useless, and which become noxious to the body if they be retained beyond a due time. These organs are the intestines, the kidneys, the lungs, the liver, and the skin. You know quite well that they have other purposes to serve besides; yet this one of *excretion*, for the removal of improper matters from the body, becomes an important one.

"I need not describe to you the minute anatomy of the skin; but, really, I cannot easily overrate the importance of its different functions, and more particularly of those of *excretion*, for which its structure is well adapted. I just remind you here that it is composed of three layers or coats; the internal one is called the *cutis vera*, or true skin, of which I have already treated. The middle layer is called the *rete mucosum*, or mucous network; and it is most conspicuous in the negro, in whom it becomes the seat of colour. On the external surface of the *cutis* there is a particular and complex network of blood-vessels, nerves, and absorbents. These nerves are of both kinds, both *organic* and *animal*, that is, both *insentient* and *sentient* nerves. The *organic nerves* give power to the arteries to perform their part in the functions of the skin, and these are chiefly of an excrementitious nature. The supply of *animal nerves* to this *vascular plexus* of the skin gives to it its fine sensibility.

"I mentioned to you before, that the softness of the skin is owing to the oily matter which *sebaceous glands* secrete for the purpose; and on this oily substance depends the peculiar odour of the animal body. This odour becomes variously strong, and very peculiar, in certain states of the nervous system. I have known it more particularly affected in the *insane*.

"But, dear sir, there are certain grounds for supposing that this odour may be various in its quality, beyond our power of conception. I am thinking of the dog, the faithful but often ill-requited companion and friend of man. You know that he at once distinguishes the odour of his beloved master amid the crowd of thousands. He distinguishes by his nose where is the footstep of his master, be it in the crowded city or on the public road.

"I wish you especially to keep in mind that the skin is highly furnished with blood-vessels and nerves, and that it performs most important functions. It performs at least four; three of which are *organic*, and one is *animal*; namely, secretion, excretion, absorption, and sensation. The last-mentioned is the one *animal* function which the skin performs, and which serves, as you know, most necessary purposes.

"The principal excretion of the skin is that of the *perspiration*. This is both *sensible* and *insensible*. The former is commonly called *sweat*, the latter is invisible; but it is constantly going on, so that a great amount of matter passes, in this way, out of the human body every day. You are aware that the sweat, or visible perspiration, is the great means of regulating the heat of the body when it is exposed to a high temperature, especially in tropical climates, and in the hot summer weather of our country. The evaporation of the fluid perspired is a cooling process.

"You must not forget that *carbon* is constantly separated or excreted by the skin from the blood; and thus you perceive that in this action it aids the lungs in their great process of depuration or decarbonization. Remember, however, that another great office of the skin is to relieve the blood of its excess of water, of which hydrogen is the chief element. You see, then, that the three great organs for depurating the blood of carbon and hydrogen are the lungs, the liver, and the skin. They are closely connected in function, so that, under certain circumstances of climate and habits, they become vicarious, that is, they act for each other.

"Let me fix your attention on the extent and importance of the functions of the skin; and especially on the great fact that this extensive organ of four functions is the very appropriate field of operation for the *water cure*. No wonder that this has proved the most efficacious of all curative means ever practised against the diseases of the human body.

"Were it not that the history of the arts and sciences affords so much, and too much, evidence of the unreasonableness of mankind in rejecting and denying the value of the best of discoveries, and which afterwards became of the highest worth and greatest service to the world, one would scarcely credit that the water cure could meet with so much indifference and opposition from educated and professional men.

"As to the excretory function of the lungs, you are already aware of it from your perusal of my other treatise, "*On the Nature of the Water Cure.*" Be not impatient of repetition; I will briefly recapitulate. The lungs, you are aware,

are the chief decarbonizing organ of the body. The venous blood, with which are commingled the chyle and lymph, is the carbonized and impure blood which enters the right side of the heart, and by it is sent to the lungs, where the process of decarbonization takes place, through contact with the oxygen of the air inhaled. It is returned from the lungs to the left side of the heart in the character of *arterial, oxygenized,* and *vital blood.* It is then sent by it into all parts of the body.

"There are some particulars of great interest connected with this process, which have been proved by the experiments of Dr. Stevens, now of Malvern. I must not enter into an account of them. However, one of the ascertained facts which have been published is, that there exists a strong attraction between oxygen and carbonic acid, whatever may be that between it and carbon. In my next letter I shall have to make further mention of Dr. Stevens and his discoveries in connection with the nature and treatment of cholera; at present, therefore, I abstain from a longer statement.

"I have already mentioned to you the *elective power* of the lacteals. The matters which had been rejected by these lacteals are taken up by the veins and absorbents of the adjoining parts, and are conveyed into the blood which goes by the *vena portæ* to the liver. Now, by the appropriate function of the liver these matters undergo a further and perfect digestion. After this, they are conveyed by a short course to the heart, and thence to the lungs for their assimilation to the nature of arterial blood.

"The liver is an organ of excretion, as you now see, for the substances called carbon and hydrogen, the chief constituents of bile; and they are highly excrementitious; and the more copious the quantity of bile secreted, the larger the amount of carbon and hydrogen taken from the venous blood. Thus, as stated before, the liver is greatly auxiliary to the lungs and the skin in their work of *excretion,* and of necessary depuration of the vital fluid, the blood.

"I have next and only just to notice to you the excretory functions of the kidneys. They have nothing to do with the excretions of the liver, the lungs, and the skin, as far as *carbon* is concerned. The kidneys, you know, secrete the urine. According to the various circumstances of the human system does the quality of this secretion vary in its composition. The special office of the kidneys is to eliminate or extract the highly animal substance called *azote* or *nitrogen.* This, you know, is an elementary ingredient, and a principal substance of their excretion from the body, but not the only one. They have, indeed, a certain relation in their function to that of the skin, in the *watery fluid* which forms so large a part of the urine, and this is always in the inverse proportion of the quantity taken from the system by perspiration of the skin.

"Many different kinds of salts and other matters are to be found in the urine by chemical analysis; but I need not mention them here. The chief matter which characterizes its composition is called *urea,* which is of a highly animalized nature, and the constant excretion of which cannot be interrupted for any length of time without the most injurious and even fatal results.

"The function of the kidneys appears to be the occasional outlet for whatever is not needed in the animal system, and whatever is not of a suitable quality for a passage by the other organs of excretion, or does not find its usual and proper outlet. Often does the bile pass in the urine when the usual passage by the bowels is stopped by disease. The special matter of extraction, I repeat, is *urea* as a proximate principle, and the special elementary substance is *nitrogen* or *azote.*

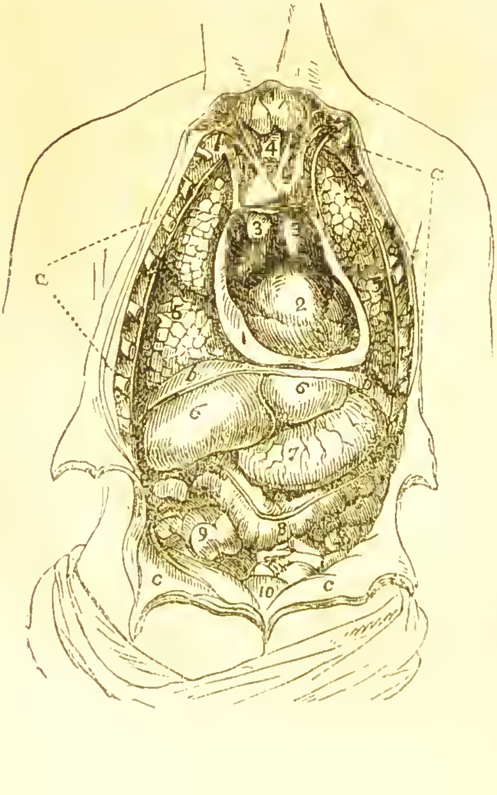
"We will now, dear Sir, briefly consider the object or purpose which is served in the human body by the function of *excretion.* It is soon stated. You are aware that the grand source from which are derived the materials of the body's composition is the blood. It becomes a matter of great moment that this vital fluid be preserved in a state of purity, and adapted for the great purpose of supply of the various tissues, and for the purposes of life and organization. A wrong condition of the blood, by the retention of any matters which ought to be continually removed, becomes rapidly injurious and even fatal to life.

"*Excretion* is the great depurating process of the blood. Firstly, that of the lungs cannot be at all suspended without the worst consequences, which are immediately experienced. The carbon of the venous blood, which ought to be extracted by its combination with oxygen of the atmospheric air inhaled, quickly accumulates, and mixes with the arterial blood. In a minute or two the arterial blood becomes venous, and being carried to the brain, sensibility is first destroyed; then the heart ceases to act, and death ensues. Such is the case in death by hanging, and drowning, and all similar means by which the function of respiration and decarbonization is interrupted.

"If the proper excretion of bile by the liver be stopped, it soon accumulates in the blood, and its deadly properties are experienced in the extreme depression of nervous power. If the usual excretion be not soon re-established, insensibility and death will supervene.

"I have next to apprise you, that if the excretion of *urea* by the function of the kidneys be interrupted for a short time, the blood is thereby rendered putrescent; and very soon the most malignant fever destroys the individual; coma, or stupor, and death are the result of its retention in the vital fluid. This is occasionally seen in the course of certain diseases, and becomes the cause of their fatal termination.

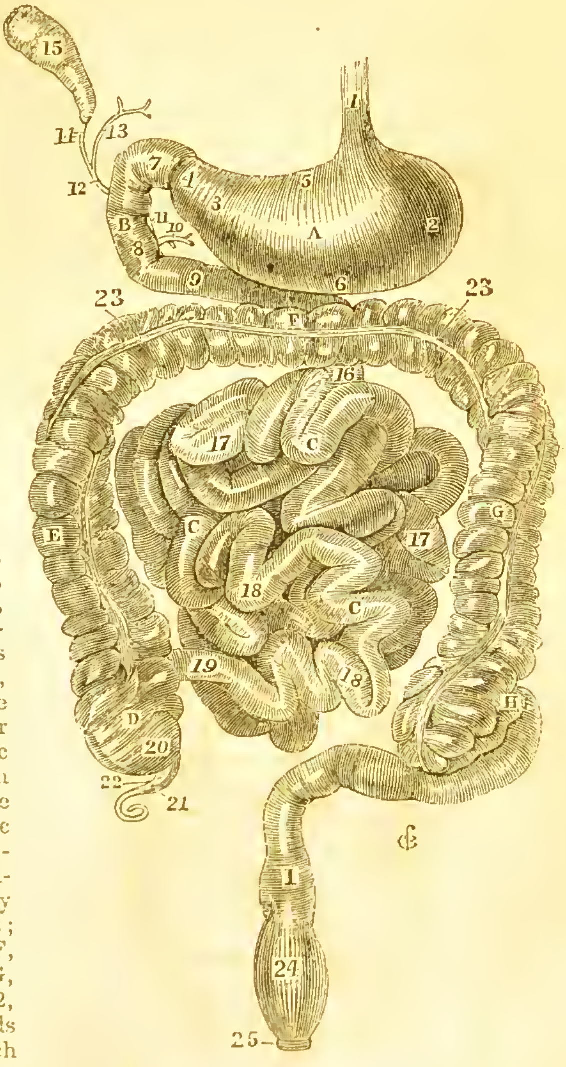
"Further, in regard to the excretion of the skin. You are aware that the internal and external covering of the body, that is, the skin and the mucous



a. The cut edges of the ribs, forming the lateral boundaries of the cavity of the thorax. *b*. The diaphragm, forming the inferior boundary of the thorax, and the division between the thorax and the abdomen. *c*. The cut edges of the abdominal muscles, turned aside, exposing the general cavity of the abdomen. 1. The cut edge of the pericardium turned aside. 2. The heart. 3. The great vessels in immediate connexion with the heart. 4. The trachea, or wind pipe. 5. The lungs. 6. The liver. 7. The stomach. 8. The large intestine. 9. The small intestines. 10. The urinary bladder in the male; the womb occupies the place in the female, and the bladder more to the right side.

membrane of the mouth and intestinal canal, are identical in structure and character; and that the whole difference of their appearance is owing to their difference of position. Hence the close sympathy between them. When the excretion of the skin is suppressed, the internal organs suffer immediately.

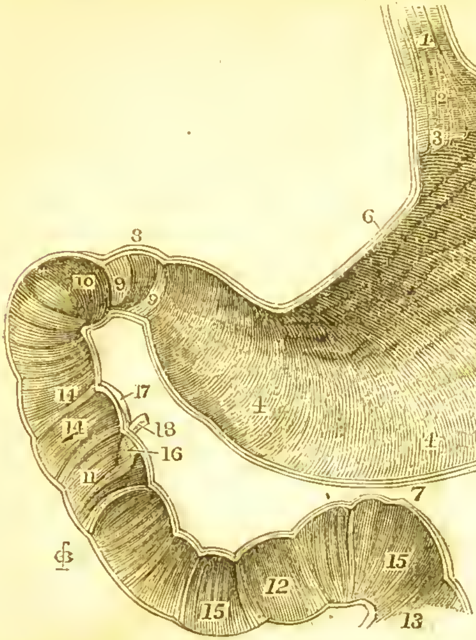
“As to the excretions of the intestinal canal, and the very injurious effects of their suppression, I need not inform you. Such is the importance of a constant and due action of the bowels.



THE STOMACH, DUODENUM, COLON, SMALL BOWEL, AND RECTUM.—*From Quain.*

Fig. 1, the æsophagus; 2, the great, or cardiac extremity of the stomach; 3, its lesser, or pyloric end; 4, a constriction corresponding with the pylorus; 5, the superior, or lesser curve of the stomach; 6, its inferior, or greater curve; B, the duodenum; 7, its ascending portion; 8, its descending portion; 9, its transverse portion; 10, the termination of the pancreatic duct, opening into the descending portion of the duodenum near its inferior angle; 11, the termination of the ductus communis choledochus; 12, the ductus communis choledochus; 13, the common hepatic ducts; 14, the cystic duct; 15, the gall-bladder; C, C, the small intestine; 16, the upper part of the jejunum where it is continuous with the duodenum; 17, 17, the jejunum; 18, 18, the ileum, of a lighter colour than the jejunum; 19, the termination of the ileum in the large intestine; D, the cœcum; 20, the cul-de-sac of the cœcum; 21, the appendix vermiformis, connected with the cœcum by a delicate mesentary, 22; E, the ascending colon; F, the transverse colon; G, the descending colon; 22, 23, the longitudinal bands of muscular fibres which produce the peculiar sacculated character of the colon; H, the sigmoid flexure of the colon; I, the rectum, in which the sacculated appearance is lost; 24, some of the longitudinal muscular fibres seen upon the rectum; 25, the sphincter ani.

"When the function of excretion, by the different organs for the purpose, is duly performed, all is well with the human body. The blood continues pure and healthful in its influence on every organ, and is suitable for the great purposes



A longitudinal section of the stomach and duodenum, showing their internal surface, with the arrangement of the mucous membrane.—*Quain.*

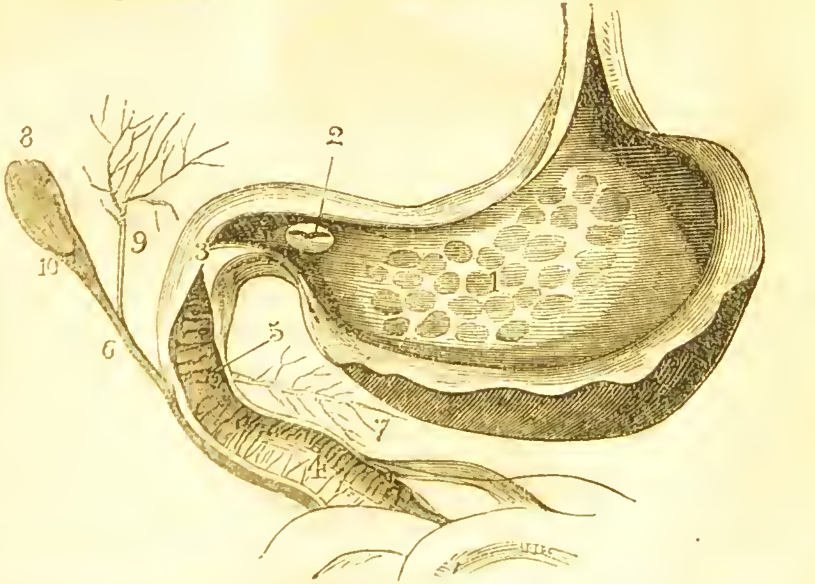
Fig. 1, the lower part of the œsophagus; 2, the cardiac orifice of the stomach; 3, 3, the abrupt border formed by the termination of the cuticular epithelium of the œsophagus at the cardiac opening of the stomach; 4, 4, the rugæ of the mucous membrane; 5, the great end of the stomach, in which the rugæ of the mucous membrane are less marked than in the middle of the organ; 6, the lesser curve of the stomach; 7, 7, the greater curve; 8, the pylorus; 9, 9, two segments of a spiral fold of mucous membrane situated in the pyloric opening; 10, the ascending portion of the duodenum; 11, the descending portion of the duodenum; 12, the transverse portion of the duodenum; 13, the commencement of the jejunum; 14, 14, the first valvulæ conniventes, which are of small size; 15, 15, larger valvulæ conniventes; 16, the papilla, upon which the ductus communis choledochus and pancreatic duct terminate; 17, a part of the ductus communis choledochus; 18, the pancreatic duct near to its termination.

MUCOUS MEMBRANE OF THE STOMACH, SHOWING THE CELLS of life. When all is healthful and well with the body, and only then, does it become the suitable tenement and the efficient organ of the soul, to obey its high behests, and to answer its great purpose of devotedness to the service of the infinite and adorable Creator. Do remember the imperative necessity of preserving the health and vigour of your body, if you wish fully to enjoy the only happiness to be found on earth, the happiness of a life devoted to the glory of God."—*End of Letter* 1*st.*

PERICARDIUM.—The membranous bag that surrounds the heart, and the arterial and venous trunks connected with it. The pericardium consists of two layers, an external or fibrous, and an internal or serous. The serous membrane lines the fibrous one, and is reflected over the heart after the manner of serous membranes in general. Its use is to secrete and contain the liquor pericardii, which lubricates the heart, and prevents attrition between the opposite surfaces of the pericardium.—*Dr. Hooper.*

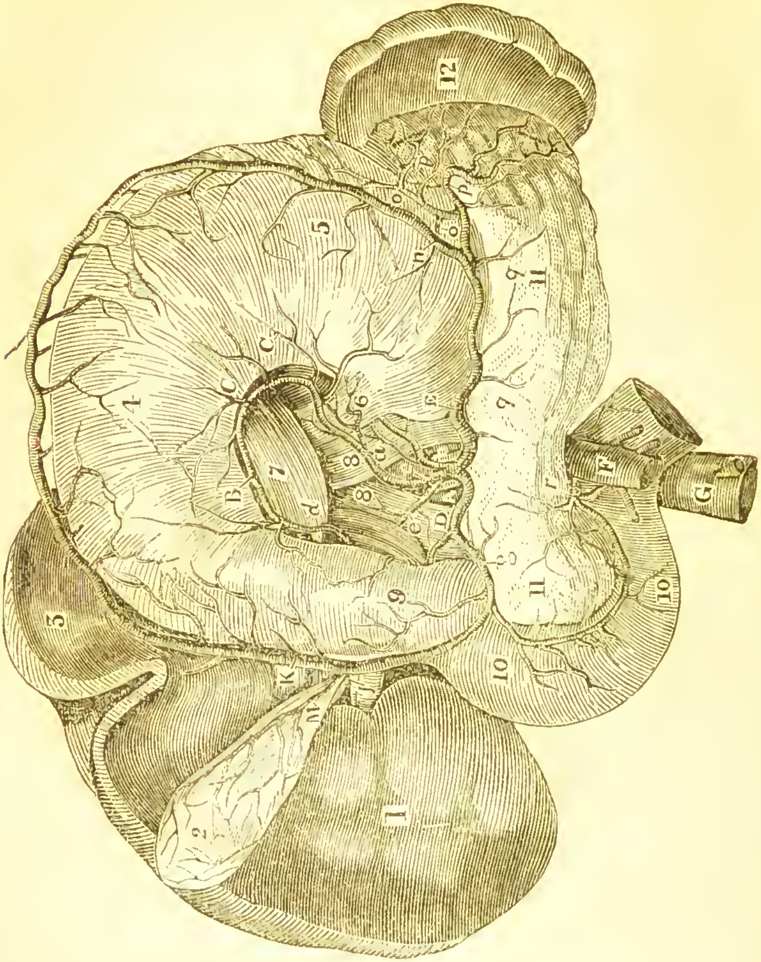
Dr. Smith says, the contents of the abdomen consist of the organs which belong to the apparatus of digestion, and of those which belong to the apparatus of excretion. The organs which belong to the apparatus of digestion are—1. The stomach.—2. The duodenum.—3. The jejunum.—4. The ilium. The three last organs are called the small intestines, and their office is partly to carry on the digestion of the aliment commenced in the stomach, and partly to afford an extended surface for the absorption of the nutriment as it is prepared from the aliment.—5. The pancreas.—6. The liver.—7. The spleen. The three last organs truly belong to the apparatus of digestion, and their office is to co-operate with the stomach and the small intestines in the conversion of the aliment into nutriment. The organs which belong to the apparatus of excretion are—1. The large intestines; consisting of the cœcum.—2. The colon.—3. The

THE STOMACH.



1. Mucous membrane, forming the rugæ. 2. Pyloric orifice opening into the duodenum. 3. Duodenum. 4. Interior of the duodenum, showing the valvulæ conniventes. 5. Termination of, 6. The biliary or choledoch duct. 7. Pancreatic duct, terminating at the same point as the choledoch duct. 8. Gall-bladder removed from the liver. 9. Hepatic duct proceeding from the liver. 10. Cystic duct proceeding from the gall-bladder, forming, by its union with the hepatic, a common trunk, the choledoch.

rectum. It is the office of these organs, which are called the large intestines, to carry out of the system that portion of the alimentary mass which is not converted into nourishment.—4. The kidneys, the organs which separate in the form of the urine an excrementitious matter from the blood, in order that it may be conveyed out of the system.



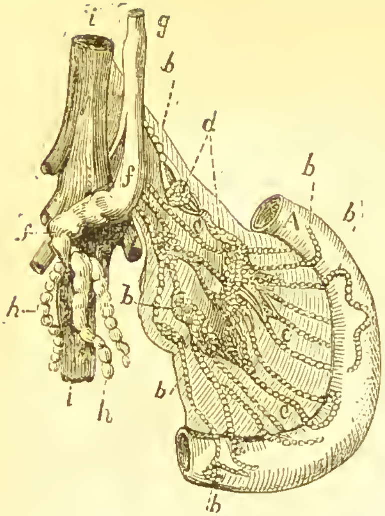
THE STOMACH, LIVER, AND PANCREAS.

The stomach is here shown as it appears when drawn upwards; thus bringing into view the pancreas, duodenum, and spleen, with their respective arteries. 1. The right lobe of the liver. 2. The gall-bladder. 3. The left lobe of the liver. 4. The middle parts of the stomach. 5. Its larger or left extremity. 6. The junction of the œsophagus with the stomach. 7. The lower part of the left lobe of the liver. 8, 8. The crura of the diaphragm. 9. The pylora. 10, 10. The duodenum. 11, 11. The pancrea. 12. The spleen.—*Quain and Wilson.*

PANCREAS. (From the Greek,—all, and flesh; so called from its fleshy consistence.) A glandular viscus of the abdomen, of a long figure, compared to a dog's tongue, situated in the epigastric region under the stomach. The prolonged portion at the right extremity has been called *Pancreas Asellii*, after Caspar Aselli, the anatomist. It is composed of innumerable small glands, the excretory ducts of which unite and form one duct, called the pancreatic duct; which perforates the duodenum with the ductus communis choledochus, and conveys a fluid, in its nature similar to saliva, into the intestines. The pancreatic artery is a branch of the splenic. The veins evacuate themselves into the splenic vein. Its nerves are from the par vagum and great intercostal. The use of the pancreas is to secrete the pancreatic juice, which is to be mixed with the chyle in the duodenum. The quantity of the fluid secreted is uncertain; but it must be very considerable, if we compare it with the weight of the saliva, the pancreas being three times larger, and seated in a warmer place. It is expelled by the force of the circulating blood, and the pressure of the incumbent viscera in the full abdomen. Its great utility appears from its constancy, being found in almost all animals; nor is this refuted by the few experiments in which a part of it was cut from a robust animal without occasioning death, because the whole pancreas cannot be removed without the duodenum: for even a part of the lungs may be cut out without producing death, but they are not therefore useless. It seems principally to dilute the viscid cystic bile, to mitigate its acrimony, and to mix it with the food. Hence it is poured into a place remote from the duct from the liver, as often as there is no gall-bladder. Like the rest of the intestinal humours, it dilutes and resolves the mass of aliments, and performs every other office of the saliva.—*Hooper.*

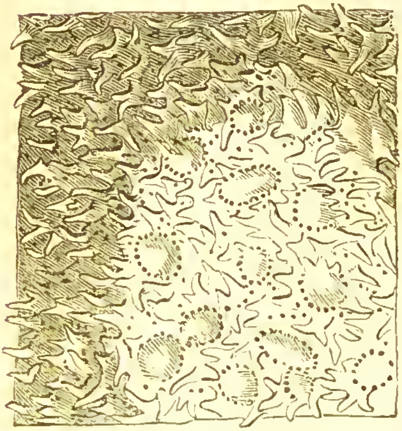
Dr. Smith says, all aliment, but more especially vegetable food, contains a large portion of carbon, more it would appear than the lungs can evolve. The excess is secreted from the blood by the liver, in the form of resin, colouring matter, fatty matter, mucus, and the principal constituents of the bile. All these substances contain a large proportion of carbon. After accomplishing certain secondary purposes in the process of digestion, these biliary matters, loaded with carbon, are carried out of the system, together with the non-nutrient portion of the aliment. In the decarbonizing process performed by the lungs and the liver, the chief difference would seem, then, to be in the mode in which the carbon that is separated is carried out of the system. In the lungs, it is evolved, as has been stated, in union with oxygen, in the form of carbonic acid; in the liver, in union with hydrogen, in the form of resin and fatty matter. Accordingly, in tracing the organization of the animal body from the commencement of the scale, it is found that among the distinct and special organs that are formed, the liver is one of the very first. It would appear to be constructed as soon as the economy of the animal requires a higher degree of respiration than can be effected by the nearly homogeneous substance of which, very low down in the scale, the body is composed. Invariably, through the whole animal series, the magnitude of the liver is in the inverse ratio to that of the lungs. The larger, the more perfectly developed the lungs, the smaller the liver; and, conversely, the larger the liver, the smaller and the less perfectly developed the lungs. This is so uniform that it may be considered as a law of the animal economy. (*See "Composition of Human Body," page* 499.)

The numbers of pounds of oxygen and hydrogen gas in comparison with the numbers of cubic feet, owing to the condensation which these gases undergo when they combine to form water, is immense, as the following extracts from Stockhardt's chemistry will show:—"By the decomposition of water analysed, and by combining together its elements (synthesis), it is proved to consist in volume of one measure of oxygen and two measures of hydrogen, yielding two measures of vapour; in weight, of eight parts of oxygen and one part of hydrogen, yielding nine parts in weight of water." "The great difference between the numbers of the measured and those of the weights depends on the fact that one measure of hydrogen weighs sixteen times less than one of oxygen." Oxygen atomic weights, 8; specific gravity, 1·1; hydrogen atomic weight, 1; specific gravity, 0·068. Hydrogen is the highest of all gases, $14\frac{1}{2}$ measure only weight, as much as 1 of air. "From one measure of water when decomposed into its elements several thousand measures of these two gases may be obtained." The coincidence of the numbers of lbs. of oxygen (111), and water (111), appears to need explanation, $12\frac{1}{3}$ hydrogen, $98\frac{2}{3}$ oxygen combine to form 111 water, the surplus oxygen and hydrogen are contained in the fat, gelatine, and oxides.



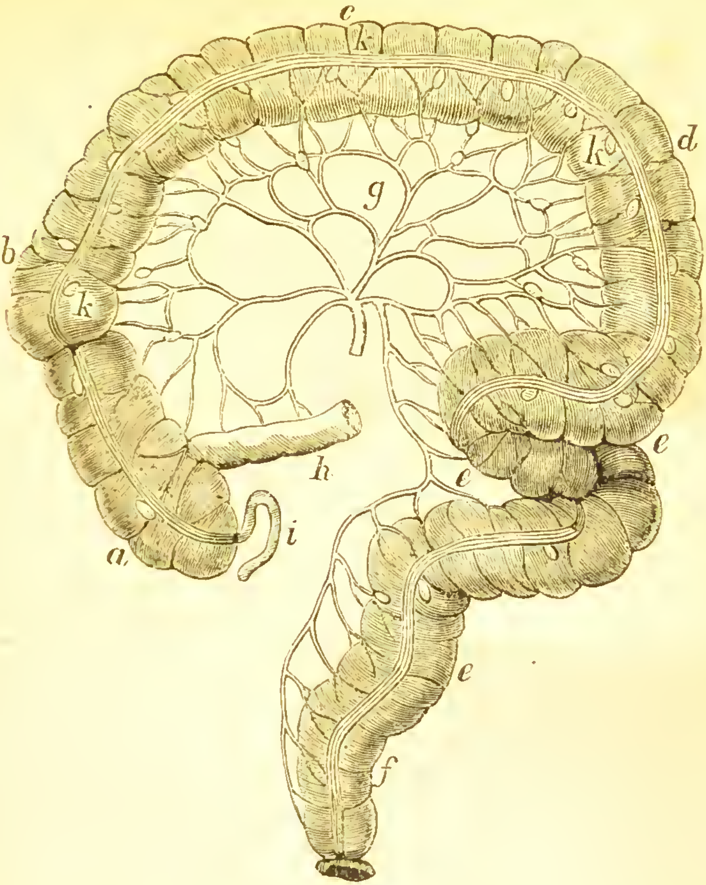
A portion of small bowel attached to the mesentery, showing the lacteals proceeding through the mesentery to convey the nutriment from the bowels to the thoracic duct. The dotted appearance of the lacteals shows the glandular structure, and in these glands the chyle or nutriment undergoes an important change before it reaches the thoracic duct.

A A, a portion of the small intestines (jejunum); *b b b b*, lacteal vessels; *c c c*. the mesentery; *d d*, mesenteric glands; *f f*, the receptacle of the chyle; *g*, thoracic duct; *h h*, lymphatic vessels from other parts of the body; *i*, the aorta.

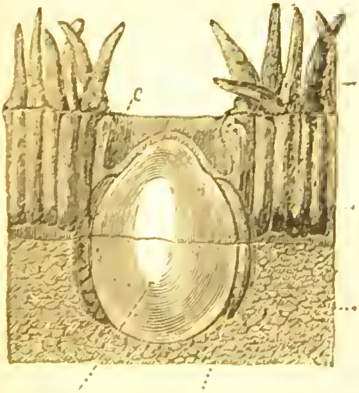


Part of a patch of Peyer's glands from the inside of the small bowel, showing also the intestinal villus, or absorbents which take up the nutriment out of the digested matter or chyme in the bowel, and convey it to the thoracic duct.

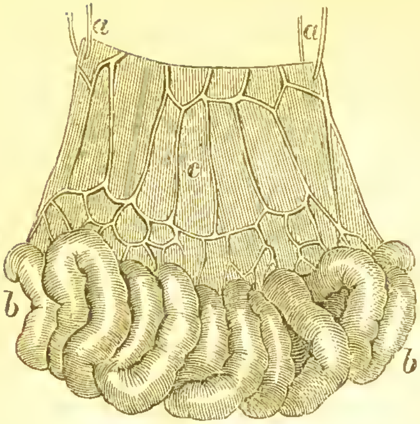
One of the solitary glands in the bowel; all these glands either take up matter and change its character, or they give out matter to aid in the processes of assimilation.



The colon, or large bowel, showing the mesenteric arteries which supply it with blood; *a*, *b*, *c*, *d*, *e*, the colon, showing the sacculated form and general arrangement; *f*, the rectum; *h*, the small intestine, terminating in the colon, and forming the cœcal valve; *g*, the mesenteric arteries.

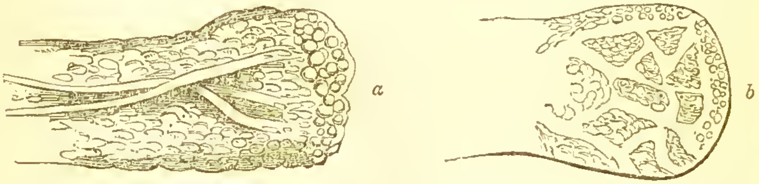


Side view of a portion of intestinal mucous membrane imbedded in the submucous tissue. The small points project inside the bowel, and take up the nutriment.

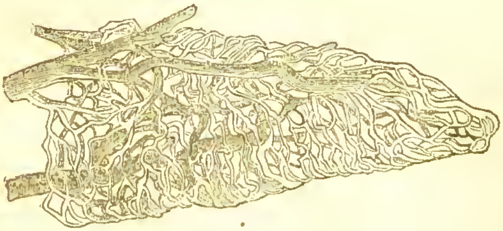


Portion of small bowel attached to the mesentery, with the veins to supply arterial blood.

The small intestinal villus, which, as is seen by the engravings, page 390, projects into the bowel to take up nutriment out of the digested food or chyme, are curiously constructed with absorbent cells at the points, so that they only take up fluid.



Extremity of intestinal villus; seen at *a*, during absorption, and showing absorbent cells and lacteal trunks, distended with chyle; *b*, during interval of digestion, showing the supposed peripheral network of lacteals.



The annexed engraving represents the blood-vessels of an intestinal villus, with the capillaries or minute veins: the larger veins, one carrying nutritive or arterial blood into the mass, the other large vein carrying the exhausted blood back for renewal.

The following is from Dr. Carpenter:—"The duodenum receives not only the pancreatic, but also the *biliary* secretion; and from the constancy with which this fluid is poured into the upper part of the intestinal tube, or even into the stomach itself, in all animals which have any kind of hepatic apparatus, it seems a legitimate inference that this secretion is not purely excrementitious, but serves some important purpose in the digestive process. It is not easy, however, to state with precision what this purpose is. The results of many of the experiments which have been made to determine it, are vitiated by the fact, that the pancreatic duct in most cases discharges itself into the intestinal tube at the same point with the hepatic, and has thus been frequently involved in operations performed upon it.—As the most important constituents of Bile, and the agency of the Liver as an assimilating and depurating organ, will be more appropriately considered elsewhere (CHAPS. IV. and IX.), we shall here limit ourselves to the consideration of what may be regarded as the best-established facts in regard to the uses of the biliary secretion in the digestive process.

"When its action is tested out of the body, by mingling it with the different constituents of food, it is found to exert no change upon starchy substances whilst fresh; though, when in a state of incipient decomposition, it acts upon them as other animal substances do. It has no action upon cane-sugar, until it has stood a considerable length of time; but then it converts it into lactic acid. This change it speedily exerts, as do nearly all other animal substances, upon grape-sugar. It has no action on albuminous substances even when acidulated. And although it will form an emulsion with oleaginous matter, yet the emulsification is less complete than that which is effected by the pancreatic fluid alone.* Hence it appears to be deficient in anything at all similar to the peculiar ferments of the saliva, gastric juice, and pancreatic secretion; and its office in digestion must be of a different character from that of either of those fluids. The nature of this office may be partly judged of from what takes place when fresh bile is mingled with the product of gastric digestion. The acid re-action of the latter is neutralized by the alkali of the former, and a sort of precipitation takes place (as was originally noticed by Dr. Beaumont), in which certain constituents of the bile fall down, and in which also (according to M. Bernard) the albuminous matters that have been dissolved, though not yet absorbed, are for a time rendered insoluble, leaving the saccharine matters in solution, and the oleaginous floating on the top. The admixture of the bile with the chyme seems further to have the effect of checking destructive chemical changes in its composition. For M. Bernard found that when two similar pieces of meat had been immersed for three months, one in a bottle of gastric juice alone, and the other in a mixture of gastric juice and bile, a strong ammoniacal odour, resulting from decomposition, was emitted from the former, whilst the latter was pure and free from any smell whatever. And it was remarked by MM. Tiedemann and Gmelin (and also recently by Hoffmann), that when the bile was prevented from passing into the alimentary canal, the contents of the latter were more fœtid than usual. Moreover, it is found that the admixture of bile with fermenting substances checks the process of fermentation; and M. Bernard has shown by ingeniously-contrived experiments,† that this antagonistic power is exerted also in the living body. Hence we can understand how the reflux of bile into the stomach should seriously interfere with the process of gastric digestion; and how, when there is a deficient secretion of bile, or more food is swallowed than the bile provided for it can act upon, or the character of the biliary secretion itself has undergone any serious perversion, there should be much more than the normal amount of putrefactive fermentation, as is indicated by an evolution of flatus, and very frequently by diarrhœa. Further, the want of proper neutralization of the gastric fluid will cause the continuance of acidity in the contents of the intestinal canal, which in its turn induces a state of irritation of its mucous membrane, and a perversion of its secretions: and it is one of the beneficial results of 'alterative' medicines, employed to remedy this condition, that, by augmenting the secretion of bile, they tend to reproduce a state of neutrality in the contents of the alimentary canal. Moreover the presence of a proper quantity of bile in the intestine seems to promote the secreting action of the intestinal glandulæ, and also to contribute to maintain the peristaltic movement of the walls of the canal; this appears alike from the tendency to constipation, which is usually consequent upon deficiency of the secretion, and from the diarrhœa which proceeds from its excess; and is confirmed by the purgative properties which inspissated ox-gall has been found to possess.

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* Dr. Bence Jones, in the *Medical Times*, July 5, 1851.

† "Amer. Journ. of Med. Sci.," Oct., p. 351.

"Notwithstanding all its uses, however, it must be admitted that the prevention of the discharge of bile into the alimentary canal is not attended with the deleterious results which might have been anticipated from it; for it has been found by the experiments of Schwann, Blondlot, and Bernard, that if the bile-duct be divided, and a tube be inserted in it in such a manner as to convey away the secretion through a fistulous orifice in the abdominal parietes, the animals thus treated may live for weeks, months, or even years, although they usually die at last with signs of inanition. Of the quantity of bile daily poured into the alimentary canal of man, we have no other mode of forming an estimate, than by observing the quantity poured out from the bile-ducts of animals in such experiments as those just cited. Blondlot found that a dog in which he had established a fistulous opening for the discharge of the bile, secreted from 40 to 50 grammes in the twenty-four hours; whence he inferred that an adult man secretes about 200 grammes, or 7 oz. On the other hand, it is estimated by Bidder and Schmidt, from the results of their experiments on various animals, that the daily amount of bile secreted by man is not less than 56 oz. (avoird.); of which about 5 per cent. is solid matter. It appears from the carefully-conducted observations of these laborious investigators, that the rate of secretion is by no means uniform, but that it bears a certain relation to the digestive process; the quantity poured forth in a given time being greatest about ten or twelve hours after a full meal, and then diminishing until it reaches its minimum, for which about as many more hours are required. Thus a cat, two hours after a full meal of flesh, secreted at the rate of 7·5 grains of bile per hour; at the fourth hour, 9·7 grains; at the sixth hour, 11·6 grains; at the eighth hour, 12·7 grains; and at the tenth hour, thirteen grains. From the tenth to the twenty-fourth hour, the secretion diminished at the rate of 4-10ths of a grain per hour; until it reached the lowest of the above amounts. The secretion diminishes considerably when food is withheld for some time; the quantity poured out after ten days' starvation being only about one-eighth of what it is when at its maximum. Still it is obvious, that although its rate is thus greatly influenced by the stage of the digestive process (which is the less to be wondered at, when it is remembered that the secretion is formed from blood that is charged with newly absorbed and imperfectly-assimilated matters), the excrementitious character of the secretion requires that its elimination shall be constantly going on to a certain degree; but a receptacle is provided in man, as in most others among the higher animals whose digestion is performed at intervals, for the storing up of the fluid until it can be usefully employed in that process. The intestinal orifice of the ductus choledochus is closed by a sort of sphincter; and the fluid secreted during the intervals of digestion, not being propelled with a force sufficient to dilate this, flows back into the gall-bladder, which dilates to receive it. The presence of food in the duodenum seems to excite the walls of the gall-bladder and of the biliary ducts (which contain a large quantity of non-striated muscular fibre), to a contraction sufficiently powerful to propel their contents into the intestine, in spite of the opposition of the sphincter; but whether this takes place through a reflex action of the nervous system, or through the direct stimulation of the muscular coat of the duct by the passage of alimentary matters over its orifice, we have at present no means of satisfactorily determining. It will be recollected that the gall-bladder is usually found distended with bile, in cases of death from starvation (§ 71), notwithstanding the diminution in the amount actually secreted. Of the bile which is poured into the intestinal tube, by far the greater proportion seems to be re-absorbed (§ 117).

"Besides the biliary and pancreatic secretions, there is poured into the upper part of the intestinal canal a fluid secreted in its own walls, which has received the designation of *Succus Entericus*. It seems not improbable that the secretion of this fluid may be the function of the glands of Brunner, which are small racemose clusters of follicles (Fig. 17), imbedded in the walls of the duodenum, extending also to the commencement of the jejunum. The intestinal juice appears, from the researches of Bidder and Schmidt, to be a colourless viscid liquid, invariably alkaline in its reaction, and containing from 3 to 3½ per cent. of solid matter. The total amount daily secreted in man is estimated by these experimenters at about 7 oz.; the rate of its secretion seems to be most rapid five or six hours after a meal; and its quantity is considerably increased shortly after the ingestion of fluid, and this without any diminution in the proportion of its solid constituents. The properties of this secretion are extremely remarkable: for, according to the results obtained by Bidder and Schmidt and their pupil Zander (which are now admitted by Lehmann), it exerts a solvent action on albuminous bodies scarcely inferior to that of the gastric juice, and a power of converting starch into sugar which is scarcely less than that of saliva or pancreatic fluid.

Portion of one of *Brunner's Glands*, from the Human Duodenum.

"The fluid of the small intestines, which is compounded by the intermixture of the biliary and pancreatic secretions with the salivary and gastric fluids, and with the secretion of the intestinal glandulæ, appears to possess the very peculiar power of dissolving, or of reducing to an absorbable condition, alimentary substances of every class; thus possessing more of the character of a 'universal solvent,' than either of these secretions has in its separate state. It completes the conversion of starchy into saccharine matter; and thus enables the former to supply the blood with an important pabulum for the combustive process, which is at once absorbed into the blood vessels. It emulsifies the oleaginous matter, and thus renders it capable of being introduced into the lacteals. And it not only restores to the state of solution those albuminous compounds which may have been precipitated by the addition of bile to the product of gastric digestion, but it also exerts a powerful solvent influence upon albuminous substances which have not been submitted to the previous agency of the gastric fluid (as has been shown by experimentally introducing pieces of meat, through a fistulous orifice, directly into the duodenum), and it thus completes the solvent process which had been very far from perfected in the stomach. What is the precise share, however, of each of these secretions, in producing this composite result, cannot be stated with any degree of certainty. It is obvious that the amount of each kind of alimentary substance that can be thus prepared for absorption in a given time, will vary with the amount of the secretion, by whose agency this preparation is specially affected; and as there are many indications that the quantity of each that is taken up in absorption is limited, and that it bears a relation to the wants of the system, it is probable that the amount of the solvent or reducing fluid secreted by each glandular apparatus, is regulated (as we have seen it to be in the ease of the gastric juice, § 100) by the demand set up by the nutrient operations, rather than by the amount of alimentary matter that is waiting to be digested. The processes of digestion and conversion are probably continued during the entire transit of the alimentary matter along the small intestine, and at the same time the products of that conversion are gradually being withdrawn by absorbent action; so that, by the time it reaches the cæcum, the undigested residue contains little else than the innutritious or insoluble components of the food, together with the excrementitious portion of the bile and of other secretions. Up to this time, the contents of the canal have an alkaline reaction; but in the cæcum they again become acid; and it has been supposed that this change depends upon the secretion of a fluid, analogous to the gastric juice, by the large and numerous tubular glands contained in the parietes of this part, whereby the albuminous matters still undigested might be more completely dissolved. This supposition appeared to derive weight from the fact that the cæcum is peculiarly large in most herbivorous animals, the 'appendix vermiformis' being also of greatly increased dimensions, and sometimes double. But from the experiments and observations of Blondlot, it seems probable that the acid of the cæcum is rather a product of the transformation of saccharine substances in the alimentary canal, than a secretion from its walls.* Still, as this lactic acid has a solvent power for albuminous matters, which is equal, or nearly so, to that exerted by hydrochloric acid, it is by no means impossible that it may be subservient to the completion of the digestive process in the cases in question; since, the larger the proportion of the aliment composed of saccharine matters, the greater will be the importance of a thorough extraction of its albuminous constituents.

"The intestinal tube is furnished, throughout its entire length, with innumerable simple open glandulæ, the 'follicles of Lieberkühn;' these are straight narrow cæca, standing side by side, with very little intervening substance (except where the Peyerian bodies lie amongst them), and corresponding in length with the thickness of the mucous membrane. Their orifices are seen in the interspaces between the villi, where they are so closely set together as to seem like the apertures of a sieve; and they are arranged in rings around the Peyerian glandulæ (Fig. 20). The precise nature of their secretion is unknown; and it seems not improbable that notwithstanding the close resemblance which they bear to one another in anatomical characters, there may be some variety of function among them. Thus it is likely that some of them (like the mucous glandulæ of the stomach) are everywhere destined to supply a protective mucus; whilst some of those in the higher part of the intestinal tube may furnish the succus entericus; and some of those in the lower may be concerned in the elimination of that peculiarly fæcal matter, which seems to be rather an excretion from the blood, than the result of the decomposition of any constituents of the food (§ 118).

"The undigested residue of the food, mingled with the products of secretion that have been poured into the alimentary canal, gradually acquires, in the large intestine, the ordinary consistency of fæces, through the continuance of the absorbent process, whereby the superfluous fluid is removed. The condition of this residue has been particularly studied by Dr. Rawitz, who examined microscopically the products of the artificial digestion of different kinds of aliment, and the contents of the fæces of different animals that had eaten the same articles. 'The general results of his examinations, as regards *animal* food, show that the muscular tissue breaks up into its constituent fasciculi, and that these again are divided transversely; gradually the transverse striæ become indistinct, and then disappear; and, finally, the sarcolemma seems to be dissolved, and no trace of the tissue can be found in the chyme, except a few fragments of fibres. These changes ensue most rapidly in the flesh of fish and hares, less rapidly in that of poultry and other animals. The fragments of muscular tissue which remain after the continued action of the digestive fluid, do not appear to undergo any alteration in their passage through the rest of the intestinal canal; for similar fragments may be found in fæces, even twenty-four hours after the introduction of the meat into the stomach. The cells of cartilage and fibro-cartilage, except those of fish, pass unchanged through the stomach and intestines, and may be found in the fæces. The interstitial tissues of these structures are converted into pulpy textureless substances in the artificial digestive fluid, and are not discoverable in the fæces. Elastic fibres are unchanged in the digestive fluid. Fatty matters also are unchanged: fat cells are sometimes found quite unaltered in the fæces; and crystals of cholesterin may usually be obtained from fæces, especially after the use of pork fat. As regards *vegetable* substances, Dr. Rawitz states that he 'frequently found large quantities of cell-membranes unchanged in the fæces; also starch-cells, deprived of only part of their contents. The green colouring principle, chlorophyll, was usually unchanged. The walls of the sap-vessels and spiral-vessels were quite unaltered by the digestive fluid, and were usually found in large quantities in the fæces; their contents, probably, were removed.' Besides the undigested residue of the food, the microscope enables us to recognise the brown colouring matter of the bile, epithelium-cells, and mucus-corpuscles, and various saline particles, especially those of the ammoniaco-magnesian phosphate, whose crystals are well defined; most of which are derived from the secretions. The quantity of fæcal discharge which is daily passed by an adult, seems to average from 4 to 6 oz.; but this contains 75 per cent. of water; so that the dry solid matter thus evacuated is not above 1 oz. or 1½ oz. Of this, from 23 to 31½ per cent. (the proportion being highest when an abundant meat diet has been consumed) consists of an inorganic ash."

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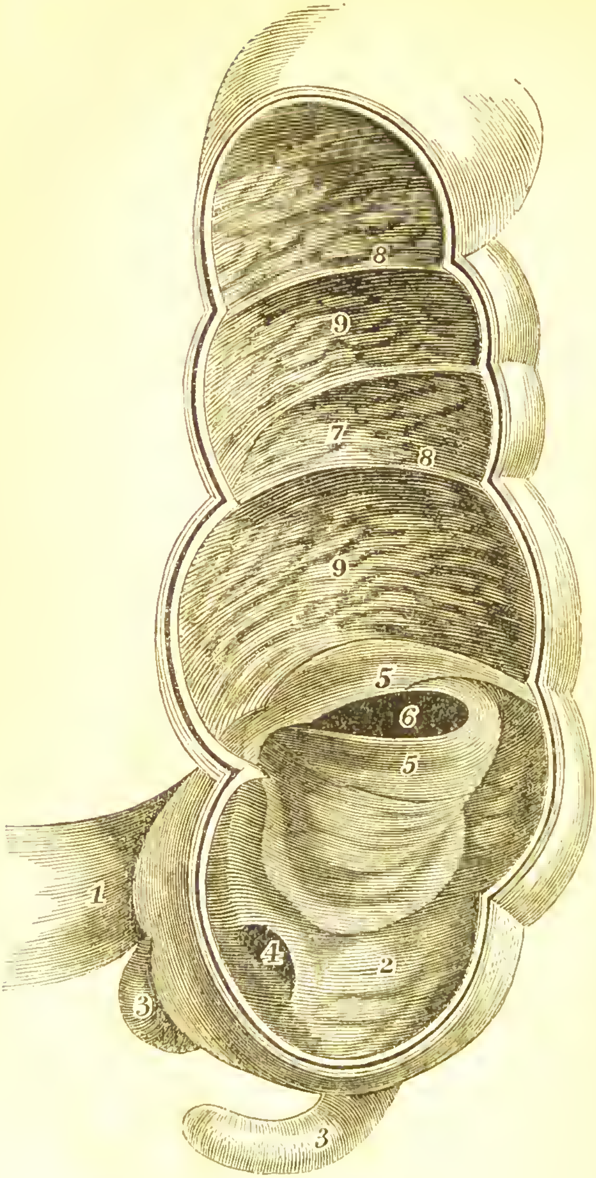
* See his "Traité Analytique de la Digestion," p. 103.

CASE A.—Chronic rheumatic gout; age, 40; after inflammatory symptoms subdued by the usual treatment for such cases, and to restore vitality. On rising, keep leg covering on, and with hot tin to feet have 112, 73½; rub also arms and bowels; all done in a warm room, keeping as much of the body covered as can be done; this for four or five minutes. Then put on vest and body clothing, and body bandage 163¼; then rub one leg and foot at a time with hand and cold water, rubbing as much as can upwards for three minutes; then put on dry spongio on leg, with flannel wrapper over, and do the other leg. Forenoon: Dry pack legs with blanket, hot cans, and mackintosh sheet for one hour; then dry-rub the legs and feet and replace dry bandages, and have 112, 73½. Afternoon only apply leg treatment, as on rising.

SAINT VITUS DANCE to be treated as Hysteria (see page 114).

CASE B.—Gentleman, 35, commercial traveller, healthy constitution, moderate habits; rheumatic affection in knees, and more especially in ancles. On rising, 16½, 149; forenoon, mustard plaister where pain till red; then wrap part in a dry hot flannel pad, hot water can over; then mackintosh for a dry pack for one hour or more, keeping on 153 same time; then put on damp spongio, with flannel wrapper over. Afternoon, have same as on rising; bed-time, hot soap-sud bath to the part five minutes; then white bread poultice in thin calico bag, with dry spongio and flannel over all night. Diet, 210; 61½ once a week.

CASE C.—London business man, age about 50, chronic gout in knees and feet, feeble, tongue bad. On rising, 17, done as directed on page 501; then dry spongio leggings and 174 damped with hot water. Forenoon, 70; then gently rub over bowels with hand and hot soap-suds for a few minutes; wipe off with dry flannel; then rub in cod-liver oil gently with hand a few minutes; then have a fresh 174 put on dry. Apply a bread poultice in a thin calico bag on swollen or painful part, and replace the dry spongio leggings over it. Afternoon, 150½, and then dry spongio leggings without poultice; bed-time, repeat forenoon treatment—two sets of spongio leggings are necessary, to have one set dry; 61½ once a week; diet, 210.



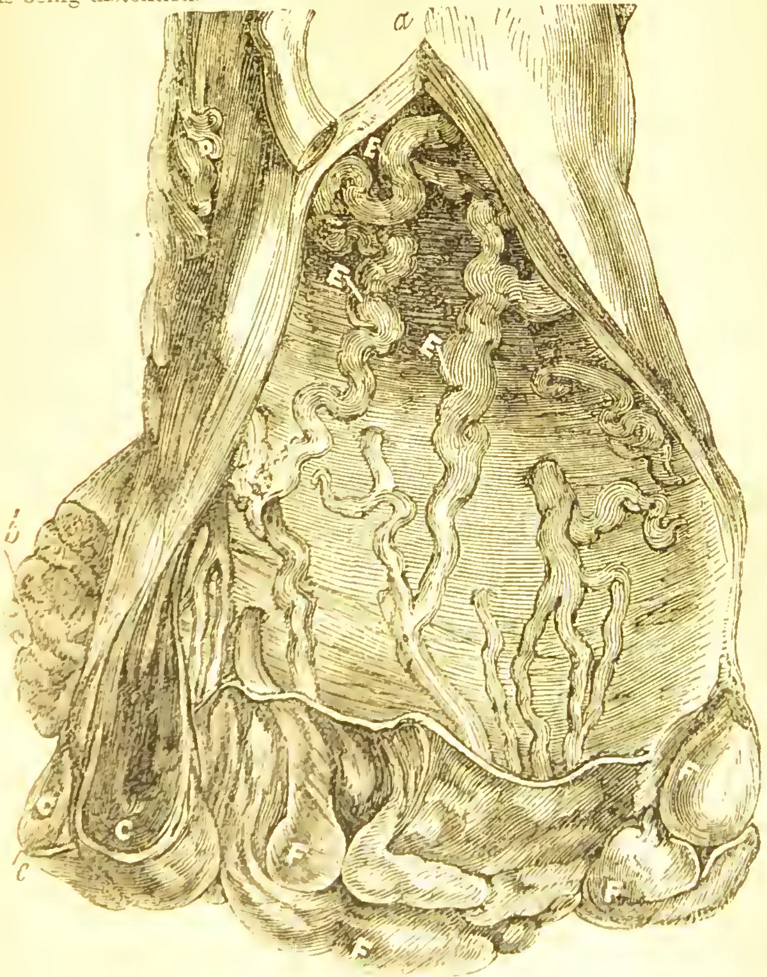
THE CÆCUM.

The cæcum is the commencement or the colon, or large gut, and rises from the lower part of the right side of the bowels. Smith says it has a digestive office; others think some change in the matter which has passed the bowels takes place; but nothing certain is known. Hard substances, such as buttons or fruit stones, which have passed the bowels, lodge here sometimes, and cause mischief. Sometimes it is inflated with wind, and has led to supposition of tumour, causing unfounded alarm. The muscular bands of the colon are well developed.

Fig. 2, a section of the cæcum and part of the colon, with the lower termination of the ileum, showing the ileocæval valve; 1, the ileum near to its termination; 2, the cul-de-sac of the cæcum; 3, 3, the appendix vermiformis; 4, the entrance of the appendix vermiformis; 5, 5, the two semilunar segments forming the ileocæcal valve; 6, the opening of the ileum into the cæcum; 7, the colon; 8, 8, valvular projections of the mucous membrane, forming the boundaries of the sacculi of the large intestine; 9, 9, the surface of the mucous membrane raised into minute folds.

DISEASES OF THE RECTUM (*the last part of the bowel*), **PILES, etc.**—The following four engravings are from "Quain's Diseases of the Rectum;" the illustrations in the work are finely coloured, and of course give a more correct idea of the blood-vessels. I have inserted these the full size, for the purpose of showing the nature and cause of piles, a complaint so very common from drinking ardent spirits and other alcoholic beverages, from sedentary habits with the abstemious, and the want of cold water application in the form of sitz baths. The blood veins are shown gorged and enlarged from want of muscular power in the vein to propel the blood, causing distension, and eventually permanent enlargement and abscess.

Engraving IV.—The bowel being partially laid open and stripped of the mucous membrane, enlarged and tortuous veins are shown, terminating in the hæmorrhoids (piles), which are seen to hang below the sphincter. *a*, the cut edges of the bowel at the upper end of the division; *b*, the sphincter; *c*, hæmorrhoids, where cut through; *d*, the veins outside the gut; *e*, the veins within, seen to be large and tortuous; *f*, piles formed by the congested blood-vessels being distended.



Sweating at Nights.—Before going to bed, have sponge over with sponge slightly squeezed out of vinegar and water, and same on rising; and, if chest affected, and difficulty in breathing, also chest pack all night.

Case E. Congestion of the Testicle and spermatic cord, probably caused by long cold sitz the patient had taken formerly contrary to prescription, but feeling the sitz after a time comfortable, continued in it. After a few weeks, slight swelling came on, but no notice taken of it; became troublesome; applied to a surgeon; ordered a suspender; used iodine and various attempts at remedy—still the enlargement went on until it became exceedingly painful. Applied to a homœopathic doctor; still all attempted internal and external remedies useless in stopping the increasing enlargement. Came to our establishment. Treatment to commence with as follows, which gave ease immediately—softened and reduced the congested parts; have no doubt will soon effect a cure:—On rising, first day, 115, 13, 11; second morning, 115, 16; third, 115, 16. Forenoon, first day, 144, with small foment pad before and behind, not down the thigh, and after have 115 three minutes; then 159. Second forenoon, same; third, ditto; afternoon, as forenoon; 106 with hot soap-suds. The part cased in sponge or water dressing kept damp; worn night and day; 127 twice per day; 61½ once a week. Diet, 210. White bread poultice the part all night; if can, make it comfortable; 199 to the part affected.

Sitz Bath sometimes injurious.—Cold sitz bath, taken for a long time at once, is sometimes the cause of much injury. I never order a cold sitz above six or eight minutes, and generally four or five minutes. I have known congestion of the testicles and a state brought on that would have resulted in tumour, had the subjects not come in time to have the mischief remedied by our warm treatment. Long cold sitz will often cause swelling of the glands in the groin; and in females, congestion of the womb or the ovaries, and bring on ovarian disease.

Stomach Disease—Diet.—On rising, and before any bath application, have a raw egg beaten up in a little warm water and sugar, or without sugar. Breakfast, rasher of broiled fat bacon, and white bread, and weak black tea. Before forenoon treatment have a rusk or arrow-root biscuit, and half-glass water by sips. Dinner, game, fowl, or meat, all cold; cauliflower, French beans, or boiled rice—no potatoes; rice pudding without eggs, and try a little stewed fruit—pears, plums, or apricots. Afternoon, if feel wanting, as forenoon; tea, as breakfast; supper, two or three figs—best done as directed in book.

Consumption—incipient or just commencing. Home treatment: On rising, take one of the following bath numbers, varying as feelings dictate:—10, 13½, 13¾, 22, 24, 25, 26½, 72, 72½. When feeling pain in chest, use 23 instead of any of the others. If much morning perspiration, use 13¾ oftenest. All the forenoon get out in the air, without fatigue; use respirator if cold. Afternoon, when feet and legs are cold, use 141 or 143, with either 156 or 153½. When legs and feet not cold, then in afternoon till bed-time attend to 106, with very little water in bath. When using 156, wipe feet with tepid towel, instead of dashing them into cold water. Bed-time, sponge whole body over with tepid or cold vinegar and water when not too fatigued; keep hot-water foot-bottle to feet in bed, wearing 153 or 195, whichever most agreeable. Whenever cough is troublesome, attend to 68; instead of above bed-time treatment, attend to 212 and 77. If, in the heat of summer, compresses oppressive, have new flannel ones—double and quilted—to wear instead. Diet, 210; no stimulants or coffee—the less flesh meat the better; milk good, if it agrees; 207, 77; use 180 and 177 without collar put on behind.

Head Pack for Nervous Headache.—Take a strip of flannel, about four inches wide, long enough to go twice round head; squeeze half of it out of *hot* water, and let the other half be dry to bind over the wet; then put on the skull cap (see list No. 215), squeezed out of cold water, and keep renewing both of the above till pain is gone.

Nervous Case.—Captain, age 35. Great hardships at sea, long watching, and anxiety; slight frame, healthy, temperate; no organic disease, stomach greatly weakened; sleeplessness; on rising 130½ with warm water, then 25, and redamp compresses 188, 178, 169, with warm water. Every forenoon 59, with 137 and 130, holding warm pad to bowels till begin to sweat, then use 13 with suds, then 31, and whilst in 31 two attendants rub well, and dry rub as 19½; then dress and 77. Head pack as above. When crisis fully out use treatment for liver disease, page 505.

The enlargement of the prostate is not attended by any pain or particular uneasiness in the gland itself; it goes on for years without giving the person affected any cause to suspect the progress of the disease. Attacks of inflammation, from cold, horse-back exercise, or other sources of irritation, now and then come on, and originate a considerable degree of pain, with difficulty in the evacuation of fæces or urine.

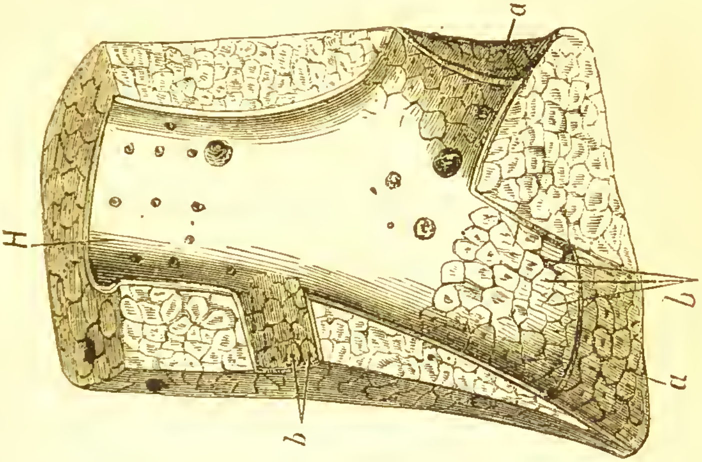
The circumference of the prostate being more or less increased in cases of its enlargement, the altered condition of the gland makes it encroach to some extent on the rectum; there need not, however, be any proportion between the inconvenience produced on the bladder and on the gut by the enlarged body. In the case of the rectum, it is the bulk of the gland on its external aspect which gives rise to inconvenience; as regards the bladder, it is not so much the actual size of the gland as the manner in which it presents itself to the urethra, that produces dangerous effects. A very small valvular enlargement of the middle lobe may be fraught with the most pernicious consequences to the urinary apparatus, while the rectum shall be little affected; on the contrary, a largely hypertrophied prostate may not present so much obstruction to the evacuation of urine as to the passage of fæces along the rectum. Altogether, it may seem, at first sight, remarkable how little the functions of the rectum are disturbed by this disease; there is in most cases simply a moulding of the fæces by the gland as it impinges on the gut, and even this impression may be subsequently obliterated by the sphincter ani. The immunity of the rectum from retention of its contents is, however, easily accounted for; the circumference of the enlarged gland is not usually so much increased as to affect the capacious rectum sufficiently to offer an obstruction to the evacuation of the fæces; its growth to any very great extent externally is restrained by the strong investing capsule of the gland, while hypertrophied nodular bodies projecting into the bladder or urethra may present an insuperable obstacle to perfect evacuation of the urine; there are no irregular growths on the exterior of the prostate adapted to arrest the passage of the fæces through the rectum; and, lastly, the connexion which the gland bears to the rectum is not of that intimate nature which it has to the bladder, and consequently it is not prevented from being in some measure moved upwards along with the superior wall of the gut, on which it rests, by the passing fæces.

When the enlarged gland receives a sudden accession of size and becomes tender from an attack of inflammation, whether caused by cold or other circumstances, difficulty and pain may be experienced in defæcation; these inconveniences are, however, rather to be referred to the increased sensitiveness of the gland itself than to any obstruction arising from its bulk.

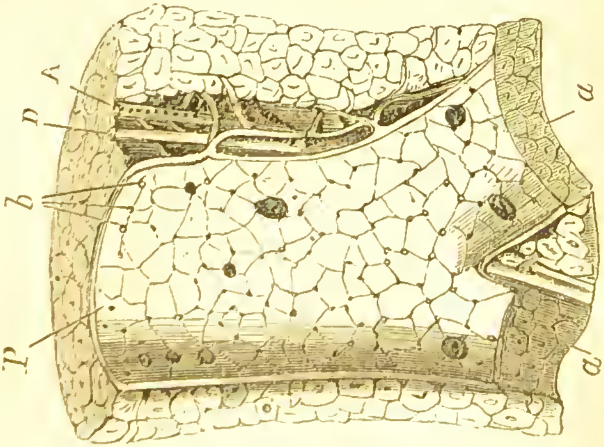
The neck of the bladder is always elevated in this disease. The general increase in size of the gland raises the urethra and adjacent portion of the bladder from the rectum; in consequence, that natural curve in the canal, which was formerly described as commencing at the neck of the bladder and terminating at the bulb, is lengthened and becomes sharper; further, the middle lobe becomes more or less prominent in the bladder, whether as a valvular or more immovable tumour, and if it be desired to introduce a catheter into the viscus without lacerating this part, the instrument must be made to ride over it in the generality of cases; these conditions, therefore, necessitate the use of a more curved instrument than is generally employed. By the growth of the middle lobe beneath the neck of the bladder, and its projection into the viscus, either as a central and movable tumour connected to the lateral lobes by an elevated fold of mucous membrane, or as a growth intimately united to them by integrity of structure, the free communication between the cavity of the bladder and the urethra is interrupted. A reservoir is formed behind the elevated tumour, and a quantity of urine is constantly retained in it; at first the tumour is small and the reservoir of a limited capacity, holding an ounce or two of water; in course of time the projecting mass becomes larger and larger, and the reservoir behind it is capable of retaining from one to two pints of liquid, and sometimes even more. Whatever may be the amount of liquid which the bladder can hold, so much only is evacuated at each micturition (passing urine) as may be in excess over the quantity which the reservoir can retain. In consequence, the bladder is dilated, at the same time that its muscular coat is hypertrophied in order to cope with the opposition in front. It does not, however, dilate to such an extent as to be able to retain, in addition to the residue urine, a quantity of fluid equal to what a healthy bladder can hold; it, therefore, follows that, as the residue urine increases, the quantity which can be expelled must be evacuated at shorter intervals, in order that the usual amount to be passed in the twenty-four hours may be made up. Frequency of micturition is present at all stages of this disease; earlier on, it is less marked, and merely attended by a feeling of urgency to empty the bladder; in the advanced stages, when the bladder is inflamed, it is accompanied and followed by great pain. The dilatation of the bladder and the increase in the amount of residue urine progress so slowly, and are extended over so considerable a length of time, that the change in his condition is imperceptible to the patient, and he becomes gradually habituated to it. In the meantime, the valvular process at the neck of the bladder, and the transverse folds connecting it to the lateral lobes, "are pushed forwards before the urine in every attempt that is made to void it, acting like a valve, and closing up the opening, till the cavity of the bladder is much distended, when the anterior part of the bladder being pushed forwards, and the tumour being drawn back in consequence of the membrane of the posterior part of the bladder being put on the stretch, the valve is opened, so that a certain quantity of water is allowed to escape, but the bladder is not completely emptied." When a moveable tumour of one of the lateral lobes projects into the bladder, the mechanism is no doubt allied to that of the preceding variety; in these cases, however, the reservoir is less marked and the disease on the whole less dangerous, because the obstructing mass is not exactly in the middle line, but leaves a rather free passage on one side of it. In certain cases, where the valvular tumour is of considerable size and weight, the patient is able to make water with comparative facility when lying down, because in that position a large pedunculate mass falls back and is not so easily pushed against the vesical orifice by the urine; in the same way dribbling of urine frequently occurs when the bladder is much distended, and (as at night in bed) no efforts are made to expel it.

Peritonæum.—(From the Greek, *I extend round.*) A strong simple membrane, by which all the viscera of the abdomen are surrounded. It has an exceedingly smooth, exhaling, and moist internal surface. Outwardly it is everywhere surrounded by cellular substance, which, towards the kidneys, is very loose and very fat, but is very short at the lower tendon of the transverse muscles. It begins from the diaphragm, which it completely lines; and at the last fleshy fibres of the ribs, and the external lumbar fibres, it completes the septum, in conjunction with the pleura, with which it is continuous through the various intervals of the diaphragm. Posteriorly, it descends before the kidneys; anteriorly, behind the abdominal muscles. It dips into the pelvis from the bones of the pubes, passes over the bladder, and descends behind; and being again carried backwards at the entrance of the ureters, in two lunar folds, it rejoins upon the intestinum rectum that part of itself which invests the loins; and in this situation lies before the rectum. The cellular texture, which covers the peritonæum on the outside, is continued into sheaths in very many places, of which, one receives the testicle on each side, another the iliac vessels of the pelvis, viz., the obturatoria, those of the penis and bladder, and the aorta, and, ascending to the breast, accompanies the œsophagus and vertebræ: by means of which there is a communication between the whole body and the peritonæum, well known in dropsical people. It has various prolongations for covering the viscera.

THE LIVER.—Until within a comparatively recent period, the entire functions of the liver have been little understood, and little has been written on the subject. Budd, on the Anatomy and Functions of the Liver, is considered the best work. The liver has been, and is now, too commonly considered with respect to its office, as merely an organ for purifying the blood of the bile or gall, and applying it to the stimulating of the bowels. This is one important office which it performs; but it has other important functions as a blood-making organ, and from this not being taken into account in the treatment of disease, serious errors are committed by giving strong doses of medicine, which so weaken the organ, that its power of forming nutritive matter for enriching the blood is sometimes destroyed. Saccharine matter, or sugar, and the red corpuscles in healthy rich blood, are extensively formed in the liver, and pass into the circulation. When the exhausted blood enters the liver by the hepatic artery, or vein, it has no red corpuscles, but is charged with impurities drawn out of the various tissues, exhausted mucus, and lymphatics; here the blood is subject to a process through the electric power of the ganglionic or nutritive nerves, by which the impurities are formed into gall, and deposited in the gall

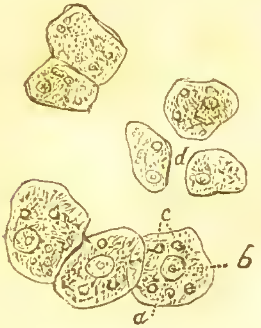


H, longitudinal section of an hepatic vein; a a, portions of the canal, from which the vein has been removed; b b, orifices of ultimate twigs of the vein, formed by the capillaries of single lobules.

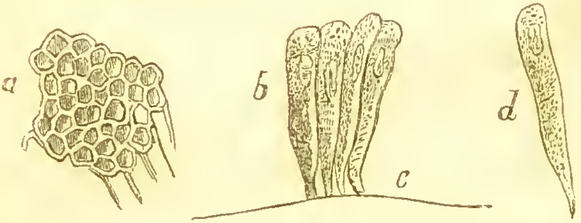


Longitudinal section of a small portal vein and canal. P, the portal vein; A D, the accompanying artery and duct; a a, portions of the canal from which the vein has been removed; b, orifices of ultimate twigs of the vein springing immediately from it.

bladder, from where it is expelled through the gall-duct, into the duodenum, where it mixes with the digested food and pancreatic juice, from the pancreas or sweetbread, and passes into the bowels, where it acts as a stimulant.—*From Dr. Budd on the Diseases of the Liver.*



Nucleated cells of the liver; *a*, the nucleus; *b*, the nucleolus; *c*, fat-globules; *d*, cells of small size, detached.



Nucleated cells of the gall-bladder, as seen under a high power; *a*, pavement formed by the union and apposition of the cells; *b*, side view of four cells; *c*, the basement-membrane; *d*, a detached cell.

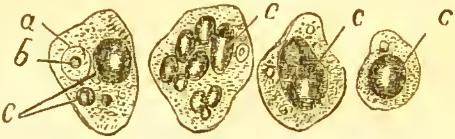
It is not in the liver only that the cells perform this office, for it seems established as a general law, that all true secretion, whether in animals or in plants, is effected by the agency of cells; that, 'however complex the structure of the secreting organ, these nucleated cells are its really operative part.' In each secreting organ, the secreting cells have a peculiar power to form, or to withdraw from the blood, the secretion proper to the part.

On examining these cells of the liver under the microscope, it is seen that most of them inclose small spheroidal globules, which are recognised by their dark outline, or high refractive power, to be globules of oil or fat.

The blood which enters the liver by the hepatic artery fulfils three functions: it nourishes the liver; it supplies the excreting ducts with mucus; and, having performed these purposes, it becomes venous, enters the branches of the portal vein, and contributes to the secretion of the bile. The portal vein fulfils two functions: it conveys the blood from the artery, and the mixed blood to the coats of the excreting ducts. It has been called the vena arteriosa, because it ramifies like an artery, and conveys blood for secretion; but it is an arterial vein in another sense, being a vein to the hepatic artery, and an artery to the hepatic vein. The hepatic veins convey the blood from the lobular venous plexuses into the vena cava inferior.—*Hooper.*

In ordinary livers these oil or fat globules are small, and few in number: but in the fatty condition of the liver so often found in persons dead of consumption, and in that induced by keeping animals exclusively on fatty substances, they are so large and numerous, as to distend the cells to double their natural size, and consequently to cause a great increase in the volume of the liver. The cells at the circumference of the lobule usually contain a larger amount of oil than the cells near its centre.

The mass of the liver is, as we have seen, made up of a plexus of capillary blood-vessels, the meshes of which are filled with nucleated cells containing the peculiar principles of the biliary secretion,



Nucleated cells, from a liver in a state of fatty degeneration: *a*, nucleus; *b*, nucleolus; *c c c c*, fatty globules.—*Bowman.*

The liver in spirit-drinkers is often rendered hard, and tough, and granular, by the contraction and induration of coagulable lymph, deposited, in consequence of inflammation, in the areolar tissue in the portal canals.

When the stomach and duodenum are empty, part only of the bile flows along the common duct into the duodenum; the remainder passes down the cystic duct into the gall-bladder.

During digestion, on the contrary, the gall-bladder contracts, and part of the bile accumulated in it, together with all which is brought by the hepatic duct, is poured into the duodenum.

Very extensive structural changes in the liver—in the fatty liver, the gin-drinker's liver, the scrofulous liver—may exist without jaundice; and that in those cases in which jaundice results from permanent closure of the common duct, the jaundice sometimes lessens after the lapse of many months, and when the secreting cells of the liver are almost entirely destroyed.

The sugar passing out of the liver by the veins and lymphatics at once enters the general current of blood, and is rapidly transformed. In a healthy animal, the quantity that enters the blood in the intervals of digestion is all transformed in the lung, so that not a trace of it can be found in the arterial blood. During digestion, when its quantity increases, some of the sugar may escape transformation in the lung, and be sent in the arterial blood to every part of the body: but it is not then found in the urine or other secretions, and must therefore be transformed in the blood. It is only when the secretion is so increased as to constitute disease that the sugar passes off in the urine, and the *diabetic* state is produced. What precise transformation the sugar undergoes in the blood is still uncertain. From some experiments made to determine this point, Bernard concludes that its transformation is not effected by the immediate influence of oxygen—that the sugar is not *burnt* in the lung, and exhaled as carbonic acid—and that it must undergo transformation by the lactic or some other fermentative process.

The most remarkable results which Bernard has arrived at are those which relate to the influence of the nervous system in controlling and modifying the secretion of sugar.

The principal of these results are the following:—

1st. That division of the pneumogastric nerves in the neck arrests the formation of sugar. If this operation be performed on a dog, and the animal be killed three days after, not a trace of sugar can be found in the blood of the hepatic vein or in the substance of the liver itself.

2nd. A second result which, on its first announcement, was very startling, is, that in all animals in which he could perform the experiment (dogs, rabbits, guinea-pigs), lacerating the floor of the fourth ventricle of the brain between the auditory nerves and the par vagum increases the formation of sugar to such a degree that a large quantity of sugar passes off in the urine, and the creature is rendered diabetic. The diabetic state continues some days, until the injury is repaired, after which sugar can no longer be found in the urine. Bernard states that the experiment which led to this singular result was suggested by his having noticed, in making experiments with another purpose, that pricking the pons varioli at the origin of the fifth nerve caused an abundant secretion of tears and saliva. He further found that irritation of the floor of the fourth ventricle of the brain increases the secretion of sugar in the liver when the par vagum has been divided in the neck; showing that the nervous influence exciting the secretion is transmitted to the liver, not down the pneumogastric nerves, but down the spinal marrow. This last conclusion was confirmed by another result, that division of the spinal marrow below the brachial enlargement puts a stop in all cases to the production of sugar.

Bernard hence infers that the nervous influence that ordinarily excites the secretion of sugar is a *reflex* influence—that it passes up the pneumogastric nerves to the nervous centre (medulla oblongata or brain), and thence down the spinal marrow, and along the spinal nerves and the branches of the great sympathetic communicating with them to the liver.

Dr. Budd shows the connexion betwixt the liver and the lungs. When we breathe pure air, and in sufficient quantity, the lungs perform their natural office in taking in oxygen, which consumes the carbon or waste matter perfectly; if we take little outdoor exercise, or breathe impure air (and which is also deficient in oxygen), the carbon is not consumed, and the useless and offensive matter remains in the system, doing mischief, except so far as the liver can take up the office of the lungs. The body is so constructed that other organs will temporarily assist any weak organ, or counteract the over-work or deficient nutriment of another; but if this strain is continued, the assisting organs are overtaxed, and the inactive organ becomes weaker from want of use. So sedentary and indolent persons throw on the liver part of the work of the lungs, and become chronic dyspeptics.

Andral, and many other writers, have remarked that congestion of the liver from impeded circulation through the lungs, when long continued, often leads to organic disease: and they have thus accounted for the frequent association of organic disease of the liver with organic disease of the heart.

There is a direct and fundamental relation between the function of the liver and that of the lung. Fortunately, the activity and effects of the respiratory process are largely under our control. In the vast power we have of modifying these by appropriate regulations, having reference to the great conditions of air, exercise, temperature, and food, we have means much more effectual than any other in dealing with biliary disorders.

Of these disorders, on the other hand, the neglect of such regulations is by far the most fruitful source.

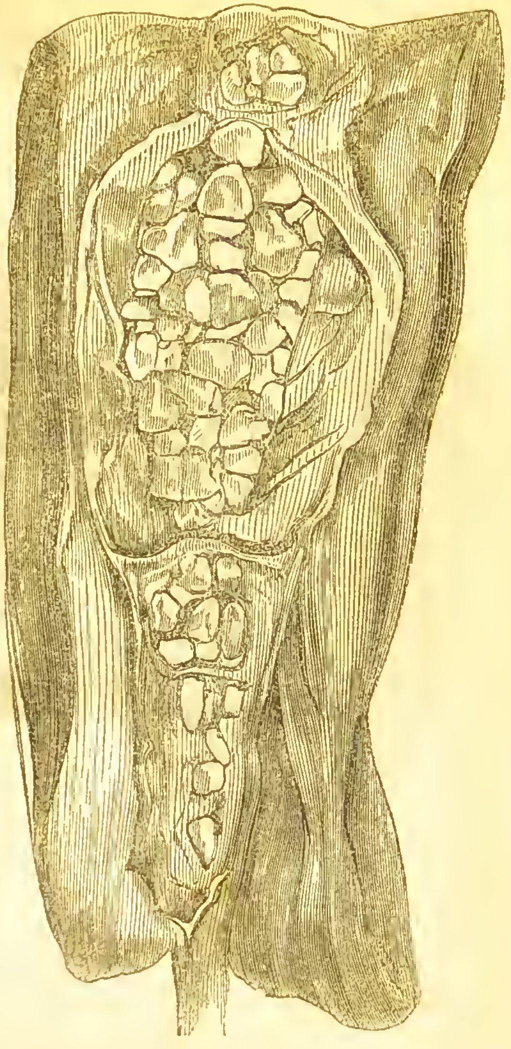
Thus, for example, may be explained many of the bilious disorders of hot climates. If, in such climates, the food be not regulated in accordance with the smaller needs of the economy as to animal heat, an excess of bile is formed, and disorder of the stomach and intestines—bilious vomiting and diarrhœa—is the consequence.

Hence, also, the general repugnance to rich meats, and the greater tendency which these and spirituous liquors unquestionably have to produce disease of the liver, in hot seasons and in tropical climates.

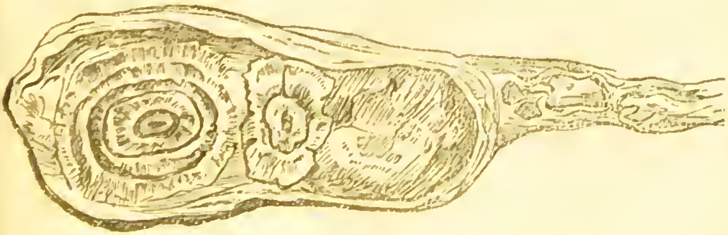
In the same way may be explained the greater frequency of bilious disorders in middle life, when men begin to take less exercise, and their respiration becomes less active, while, on the other hand, the tendency to indulgence at table but too often increases.

We may also often see inverse evidence of these relations in the effect of pure air and active exercise, in relieving various disorders that result from repletion, and from the retention of principles which, if not burnt in respiration, should pass off by the liver as bile. Every sportsman must have remarked the effect of a single day's hunting in clearing the complexion. It has, no doubt, much the same effect on the liver as on the skin.—*Budd.*

"The liver in health measures about 12 inches from side to side, and 6 or 7

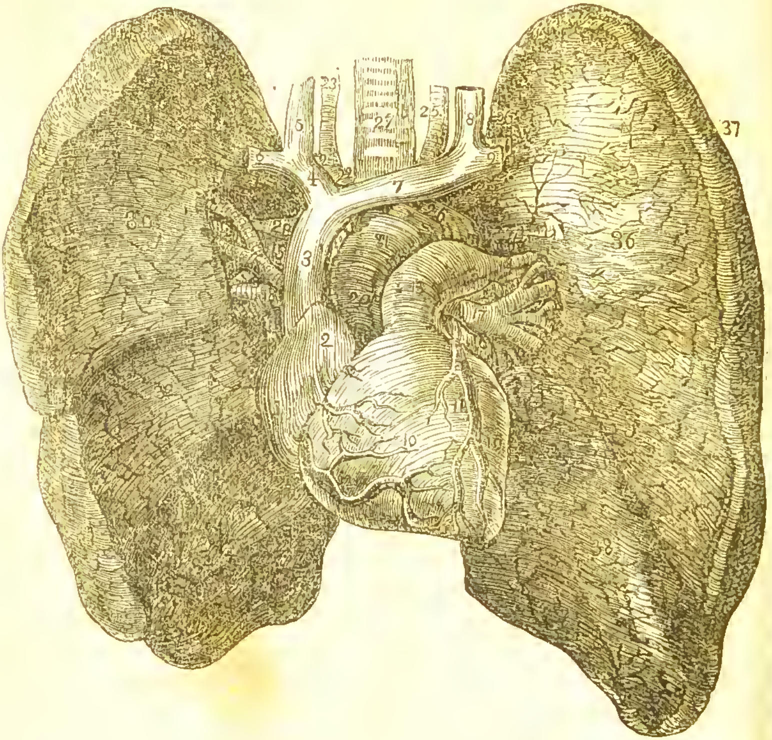


Gall-bladder filled with gall-stones, which have all a crust of pure cholesterine. From a man, 64 years of age, who died in King's College Hospital, of softening of the brain. No disease of the liver was suspected.—*Budd.*



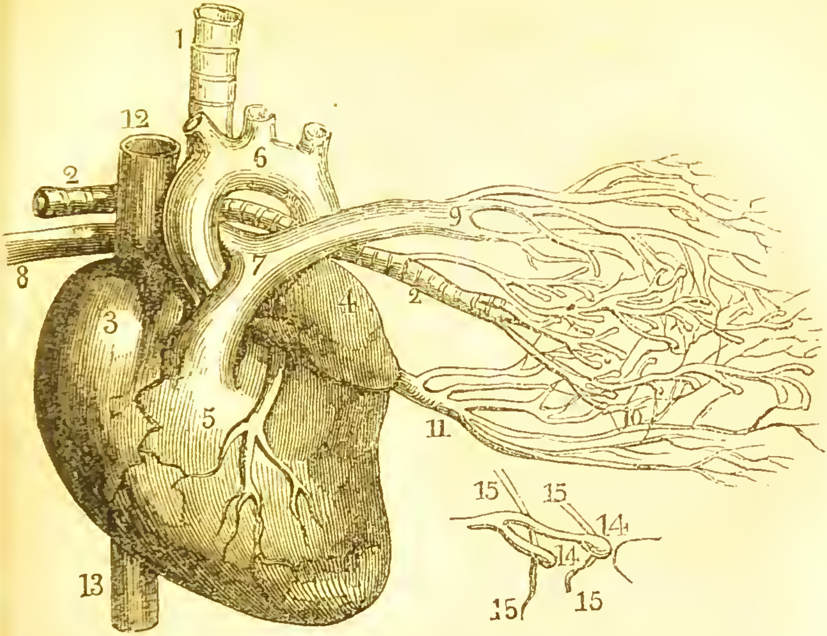
Gall-bladder and cystic ductcontaining gall-stones. The calculi have all a crust of pure cholesterine.

from its antero-posterior diameter; its bulk corresponds to nearly 100 cubic inches, and its weight varies from 3 to 4 pounds, according to the quantity of blood which it may contain at the time it is examined."—*Dr. Beale.*

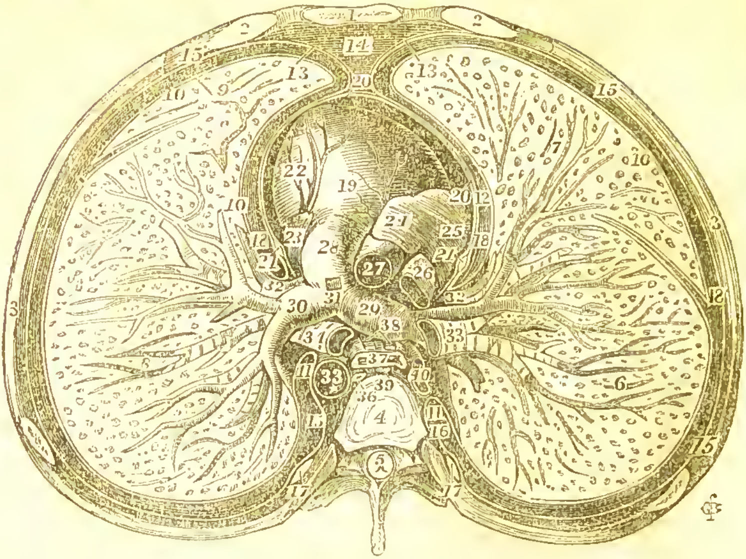


ANTERIOR VIEW OF THE LUNGS AND HEART, WITH THEIR GREAT VESSELS.—*Quain.*

1, right auricle of the heart; 2, appendix auricle; 3, superior vena cava; 4, right vena innominata; 5, right jugular vein; 6, right subclavian vein; 7, the left vena innominata; 8, the left internal jugular vein; 9, the subclavian vein; 10, the right ventricle; 11, branches of the great coronary artery; 12, ditto of the right; 13, pulmonary artery; 14, left ditto; 15, the right pulmonary artery entering the right lung; 16, appendix of left auricle; 17, one of the left pulmonary veins; 18, one of the right pulmonary veins; 19, left ventricle; 20, ascending aorta; 26, left subclavian artery; 36, 38, interior surface of the lungs



1. The trachea; 2. The right and left bronchus; the left bronchus showing its division into smaller and smaller branches in the lung, and the ultimate termination of the branches in the air vesicles. 3. Right auricle of the heart. 4. Left auricle. 5. Right ventricle. 6. The aorta arising from the left ventricle, the left ventricle being in this diagram concealed by the right. 7. Pulmonary artery arising from the right ventricle and dividing into, 8, The right, and, 9, The left branch. The latter is seen dividing into smaller and smaller branches, and ultimately terminating on the air vesicles. 10. Branches of one of the pulmonary veins proceeding from the terminations of the pulmonary artery on the air vesicles, where together they form the network of vessels termed the Rete Mirabile. 11. Trunk of the vein on its way to the left auricle of the heart. 12. Superior vena cava. 13. Inferior vena cava. 14. Air vesicles magnified. 15. Blood-vessels distributed upon them.—*Dr. Smith.*



A cross section of the Chest, showing the relative position of its viscera and large vessels, with the reflection of the pleura.—*Quain.*

3, 3, the upper borders of two ribs forming the boundaries of the section; 4, the upper surface of a dorsal vertebra (spine); 5, section of spinal marrow; 6, section of the right lung, its superior lobe; 7, section of middle lobe; 8, section of lobe of left lung; 9, its inferior lobe, the structure of the lung is seen upon the surface of these sections; 10, 10, the pleura pulmonalis of the two lungs; 12, 12, the pleura lining the external surface of the pericardium or heart-bag at each side; 17, the sympathetic nerve on each side; 18, 18, the cavity of the pleura at each side; 19, the heart; 20, 20, pericardium enclosing the heart; 22, left ventricle; 19, right ditto; 27, ascending aorta; 28, right pulmonary artery; 30, left ditto; 36, thoracic duct; 37, œsophagus or gullet; 39, right pneumogastric nerve.

PLEURA.—From the Greek word for a rib, or the side of the thorax formed by the ribs, but now applied by anatomists to the membrane which lines the internal surface of the thorax, and covers its viscera. It forms a great process, the mediastinum, which divides the thorax into two cavities. Its use is to render the surface of the thorax moist by the vapour it exhales. The cavity of the thorax is everywhere lined by this smooth and glistening membrane, which in reality consists of two distinct portions or bags, which, by being applied to each other laterally, form the septum called mediastinum: this divides the cavity into two parts, and is attached posteriorly to the vertebræ of the back, and anteriorly to the sternum. But the two laminæ of which this septum is formed do not everywhere adhere to each other: for at the lower part of the thorax they are separated, to afford a lodgment to the heart; and at the upper part of the cavity they receive between them the thymus gland. The pleura is plentifully supplied with arteries and veins from the internal mammary and the intercostals. Its nerves, which are very inconsiderable, are derived chiefly from the dorsal and intercostal nerves. The surface of the pleura, like that of peritonæum and other membranes lining cavities, is constantly bedewed with a serous moisture, which prevents adhesions of the viscera.

The mediastinum, by dividing the chest into cavities, obviates many inconveniences to which we should otherwise be liable. It prevents the right and left lungs from compressing each other when we lie on one side, and consequently contributes to the freedom of respiration, which is disturbed by the least pressure on the lungs. If the point of a sword penetrates between the ribs into the cavity of the thorax, the lung on that side ceases to perform its office, because the air being admitted through the wound, prevents the dilatation of that lung; while the other lung, which is separated from it by the mediastinum, remains unhurt, and continues to perform its functions as usual—*Hooper.*

The following is quoted from Lardner:—

"DORSAL SURFACE OF TONGUE.—It is on the superior surface, or *dorsum,* as

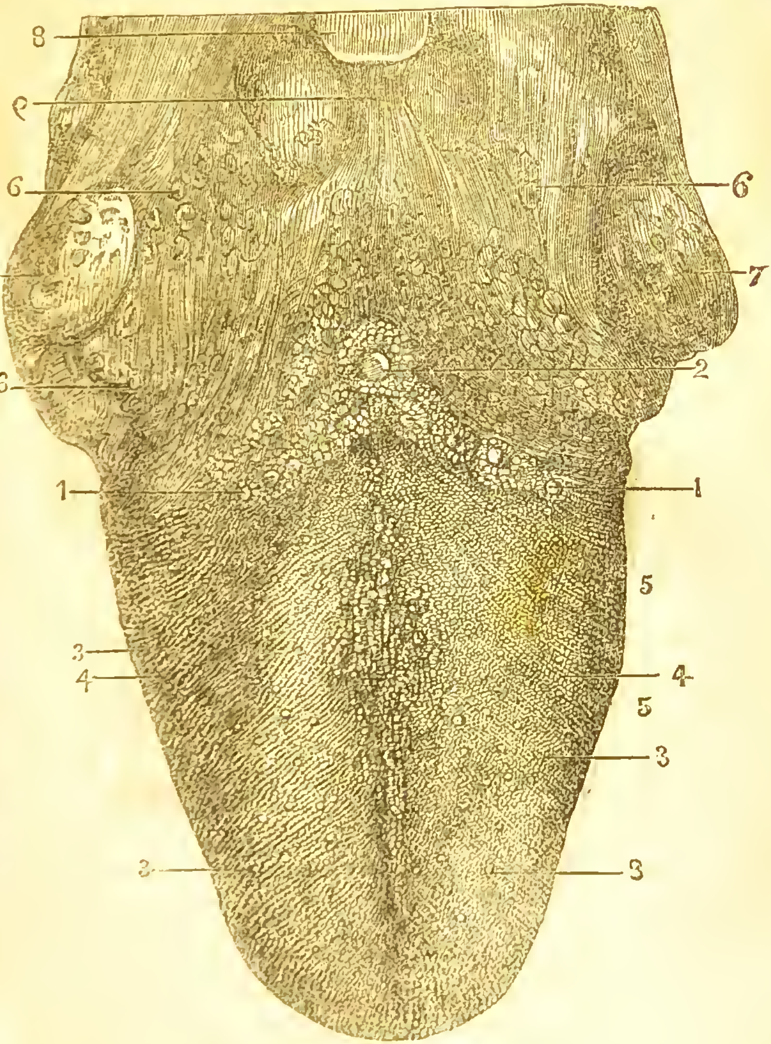


Fig. 415.

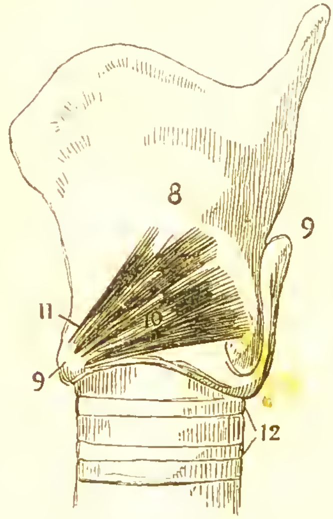
DORSAL SURFACE OF THE TONGUE, SHOWING ITS PAPILLARY STRUCTURE.—*Sappey.*

the anatomists call it, that the papillæ prevail in the greatest numbers. A view of the dorsum is given in fig. 415, from the work of Professor Sappey, which is by far the most accurate and elaborate representation of the organ which I have seen.

"That anatomist classes the lingual papillæ in four orders called Calyciform, Fungiform, Corolliform, and Hemispherical."

FUNGIFORM PAPILLÆ.—In front of the papillæ here described, and occupying the middle third of the length of the tongue, are found numerous others, much less voluminous, but more numerous and more closely packed together, like the pile of velvet. These stand perpendicular to the lingual surface, and are not inclined backwards, as was maintained by Malpighi. They are generally arranged in parallel lines emerging from the axis of the tongue, as branches emerge from the stem of a leaf. These papillæ have generally a form resembling that of a mushroom, being expanded at the summit and contracted at the base, whence they have derived the name of *fungiform*. Their magnitude is greater than that of other papillæ by which they are surrounded, but very inferior to that of the calyciform above described. These fungiform papillæ are shown in Fig. 415[3].

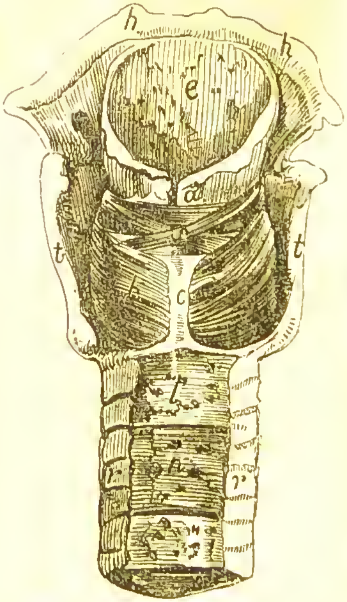
Fig. 453.



SIDE VIEW OF THE LARYNX AND PART OF THE WINDPIPE. (*Lardner.*)

8. Thyroid. 9, 9, Cricoid. 10. Crico-thyroid muscle. 11. Crico-thyroid membrane. 12 Upper rings of trachea.

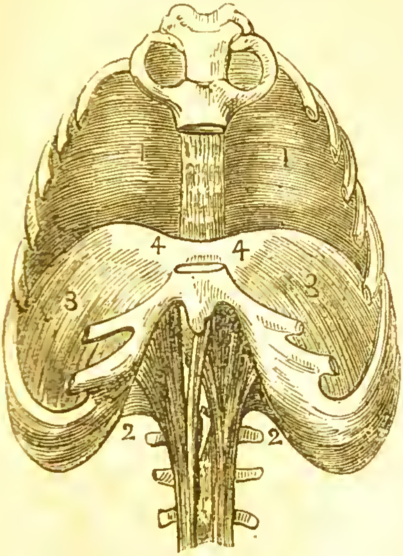
Fig. 454.



TOP OF THROAT AND TRACHEA DISSECTED. (*Lardner.*)

a. Right arytenoid cartilage. *t*, *t*. Posterior margins of thyroid. *c*. Back of cricoid. *h*. Hyoid bone. *e*. Epiglottis. *b*. Left posterior-crico-arytenoid muscle. *s*. Arytenoid muscle. *l*. Fibrous membrane at back of trachea, with glands lying on it. *n*. Muscular fibres of trachea. *r*. Cartilaginous rings of trachea.

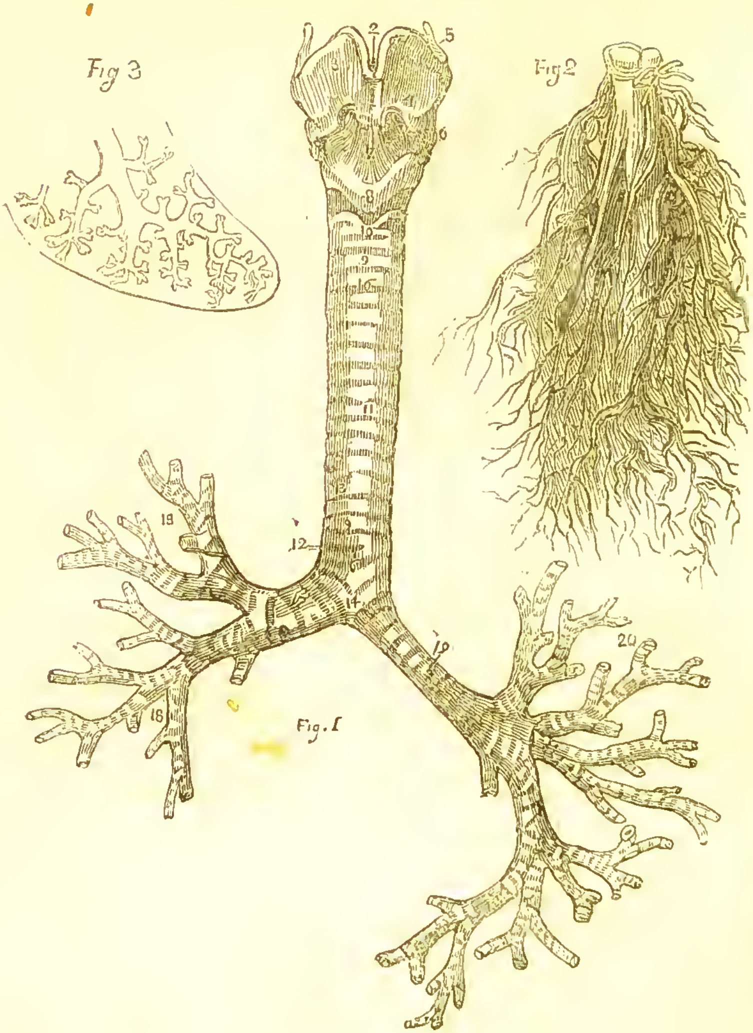
VIEW OF THE DIAPHRAGM.



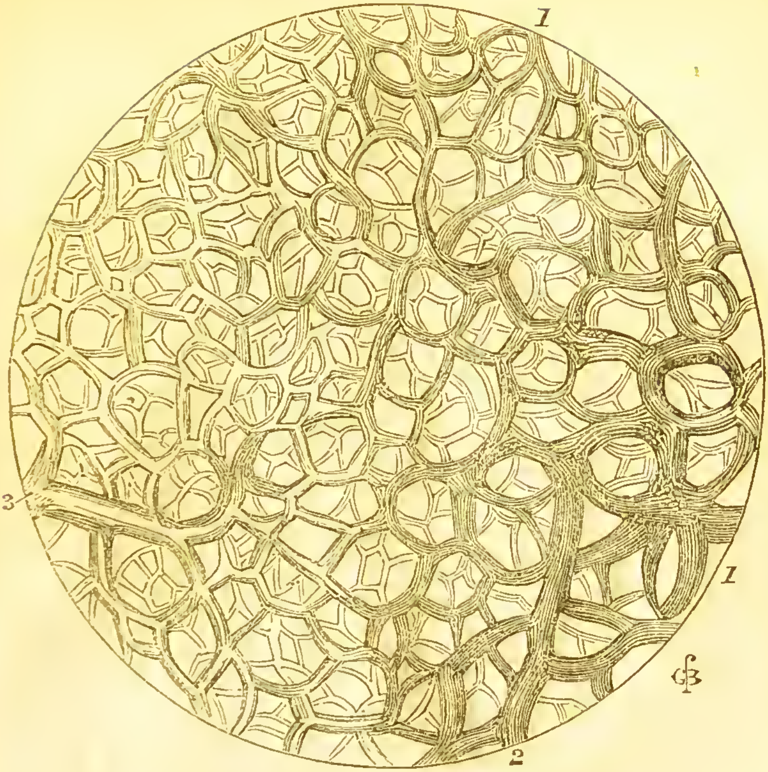
(*From Dr. Smith.*)

1. Cavities of the thorax. 2. Portion of cavity of the abdomen 3. Lateral or muscular and moveable portions of the diaphragm. 4. Central or tendinous and fixed portion of the diaphragm.

Respiratory Organs.—The following engraving of the windpipe shows also the large bronchial tubes branching out into the substance of the lungs. The fine bronchial tubes, Fig. 2, are prolongations of the larger branches. All the bronchial tubes are lined with a ciliated mucous membrane lining, and with air cells exceedingly minute opening into them, as Fig. 3; all these large and finer tubes and the minute air cells have blood veins called arteries lining their sides, besides nerves and venous vessels to carry away the exhausted blood; every time we draw in the air into the lungs it is forced by an average power of four cwt. into all these tubes and air cells to bring it in contact with the blood veins, which are of such delicate structure that the air is immediately absorbed into the blood through the sides of the veins, and turns the blood to a scarlet colour by the oxygen contained in the air. The lungs occupy the chest, and are in form of lobes, there being three in the right side and two in the left; between the latter is placed the heart, occupying as it were the place of one lobe, the whole are contained in a bag called the pleura, which is moistened by serum, that the lungs may play easy. When the blood is impoverished or inflamed, this serum is wanting, and adhesion often takes place.—*Engravings from Quain and Wilson.*

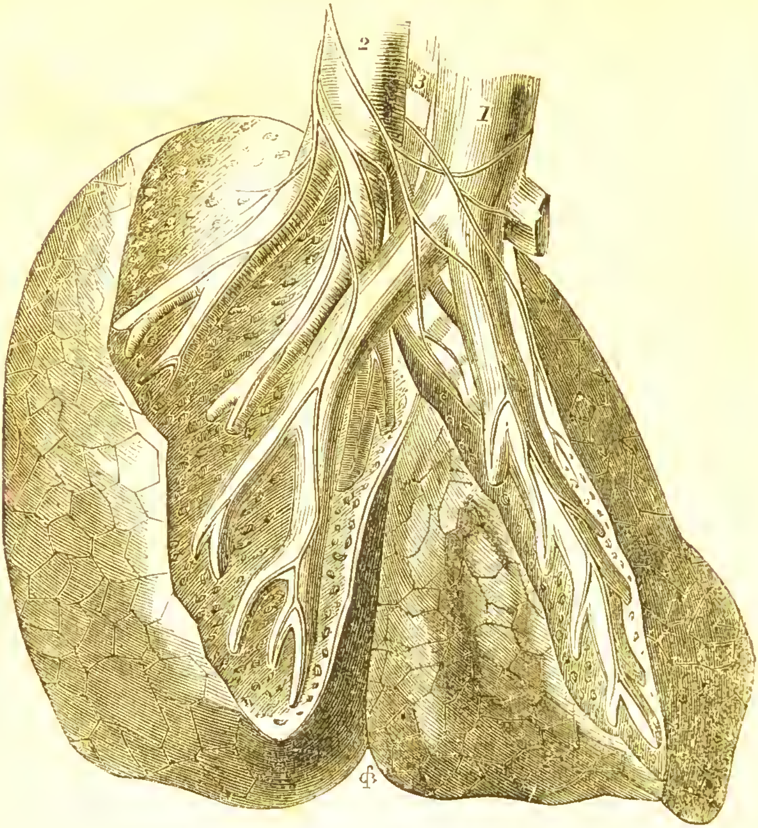


No. 1, windpipe with large bronchial tubes. No. 2, small bronchial tubes ramifying into the lungs. No. 3, air cells lining the bronchial tubes. See description of above cut, preceding page, 413



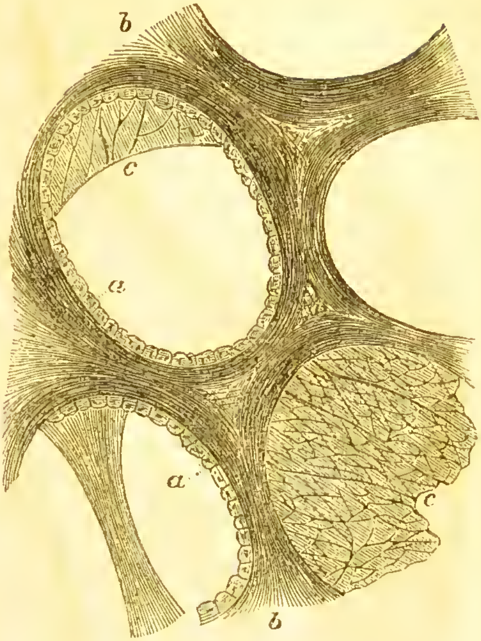
A minute portion of the human lung magnified 50 diameters, showing the capillary network formed by the ultimate ramifications of the pulmonary artery and veins. 1, 1, the arterial (*pure blood*) side of the figure; 2, a large branch of the pulmonary artery supplying the plexus with blood. 3, a venous (*exhausted blood*) trunk conveying the blood from the capillary plexus.—*Quain.*

The windpipe, one lung, and the bronchial tubes shown on the left, the substance of the lungs cut away; *a* is the top of the windpipe. It is estimated that the surface of the bronchial tubes and air-cells in the lungs cover a space of thirty thousand square inches, underneath which the blood circulates, and to this space the air comes to oxygenize the blood.



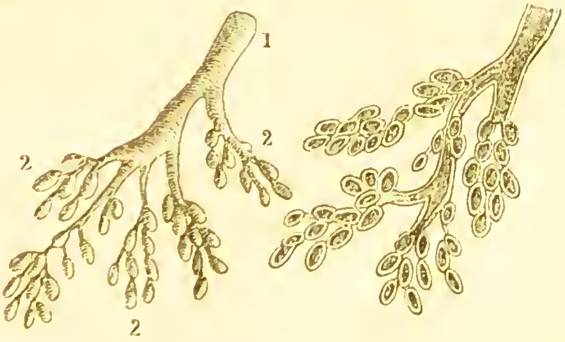
A portion of the lung, showing the distribution of the nervous filaments of the pulmonary plexuses around the vessels and bronchial tubes. 1, the pulmonary vein bringing blood to be oxygenized; 2, the pulmonary artery returning blood now fit for circulation; 3, the bronchial tube, the nervous filaments are seen ramifying upon these vessels to give motion, sensation, and power of chemical change in the blood.—*Engraving from Quain.*

"The lungs are covered with a fine membrane, a reflection of the pleura, called *pleura pulmonalis.* The internal surface of the air-cells is covered with a very fine, delicate, and sensible membrane, which is continued from the larynx through the trachea and bronchia. The arteries of the lungs are the bronchial, a branch of the aorta, which carries blood to the lungs for their nourishment; and the pulmonary, which circulates the blood through the air-cells to undergo a certain change. The pulmonary veins return the blood that has undergone this change, by four trunks, into the left auricle of the heart. The bronchial veins terminate in the vena azygos. The nerves of the lungs are from the eighth pair and great intercostal. The absorbents are of two orders, the superficial and the deep-seated; the former are more readily detected than the latter. The glands of these viscera are called bronchial. They are muciparous, and situated about the bronchia."—*Dr. Hooper.*



Air-cells of the lungs magnified 50 diameters. *a*, epithelial lining of the cells; *b*, fibres of elastic tissue; *c*, delicate membrane, of which the cellule is constructed, with elastic fibres attached to it.

VIEW OF THE BRONCHIAL TUBES, TERMINATING IN AIR VESICLES.

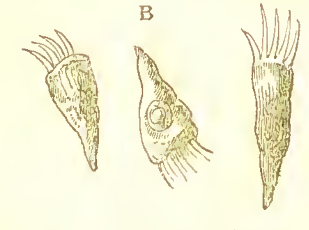


External view.—1. Bronchial tube. 2. Air vesicles.

MUCOUS MEMBRANES.—The *mucous membranes* line all those passages by which internal parts communicate with the exterior, and by which either matters are eliminated from the body or foreign substances taken into it. They are soft and velvety, and extremely vascular. Their basis, or proper texture, seems to belong to the albuminous structures. The internal, or free surface, of the mucous membranes is at every part invested with one or more layers of epithelial cells, which are separated from the vascular tissue by the layer of basement membrane.

The mucous membranes are described as lining certain principal tracts. 1. The *digestive tract* commences in the cavity of the mouth, from which prolongations pass into the ducts of the salivary glands. From the mouth it passes through the fauces, pharynx, and œsophagus, to the stomach, and is thence continued along the whole tract of the intestinal canal to the termination of the rectum, being in its course arranged in the various folds and depressions, and prolonged into the ducts of the pancreas and liver, and into the gall-bladder. 2. The *respiratory tract* includes the mucous membrane lining the cavity of the nose, and the various sinuses communicating with it, the lachrymal canal and sac, the conjunctiva of the eye and eyelids, and the prolongation which passes along the Eustachian tubes and lines the tympanum and the inner surface of the membrana tympani. Crossing the pharynx, and lining that part of it which is above the soft palate, the respiratory tract leads into the glottis, whence it is continued through the larynx and trachea, to the bronchi and their divisions, which it lines as far as the branches of from one-fiftieth to one-thirtieth of an inch in diameter. 3. The *genito-urinary* tract, which lines the whole of the urinary passages, from the external orifice to the termination of the tubuli uriniferi of the kidneys, extends into and through the organs of generation in both sexes, into the ducts of the glands connected with them, and in the female becomes continuous with the serous membrane of the abdomen at the fimbriæ of the Fallopian tubes.—*Kirke.*

CILIATED EPITHELIUM, p. 81.—(*From Kirke and White.*)—This consists in the incessant vibration of fine, pellucid, blunt processes, about one-thousandth of an inch long, termed cilia, situated on the free extremities of the cells of epithelium covering certain surfaces of the body. The form of epithelium on which cilia occur is most commonly of the cylindrical kind; but sometimes, as on the surface lining the cerebral ventricles, it is of the tesselated variety.



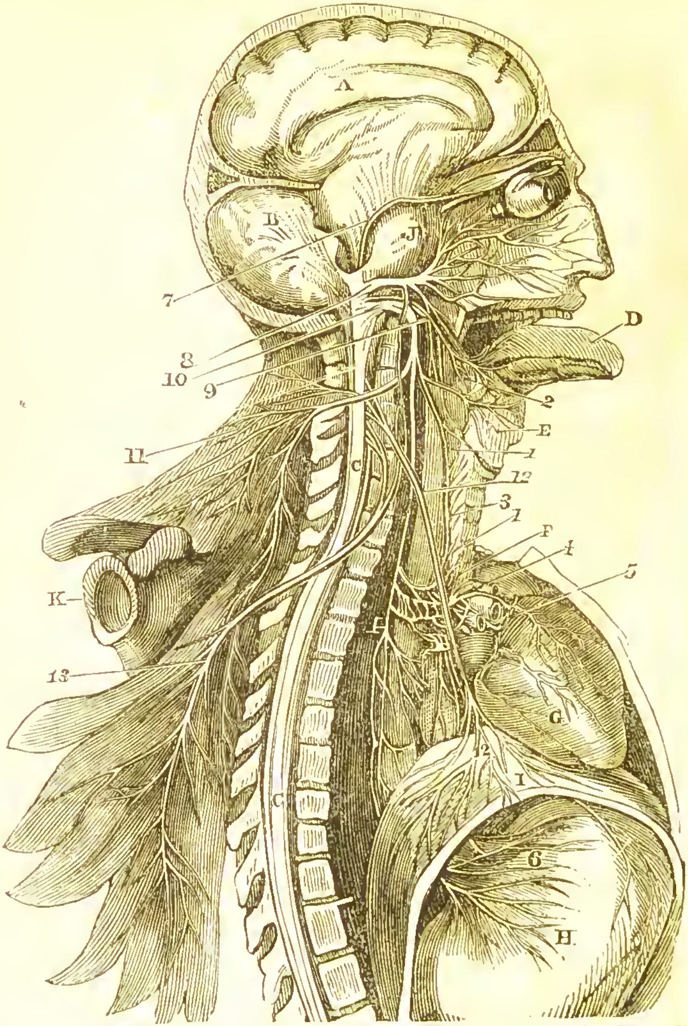
A. Cilia as seen vibrating on a portion of the mucous membrane of the trachea of a rabbit. 1, the cilia; 2, lines indicating the several epithelial cells on which the cilia are placed. After Valentin. B. Separate cylinders of epithelium, with cilia attached, from the trachea of the cat. After Henle.

In man, and probably in Mammalia generally, the ciliary epithelium lines the interior of the nasal cavity, except the olfactory region, and of the frontal and other sinuses communicating with it, the lachrymal canal and sac, and is spread over the mucous surface of both eyelids, but not over the the conjunctiva covering the eye itself. From the posterior part of the nasal cavity, it passes to the upper part of the pharynx, which it lines to about opposite the lower border of the atlas; it is also spread over the upper surface of the soft palate, and laterally is continued to the orifice of the Eustachian tube, through which canal it extends into the cavity and membrane of the tympanum. Ciliary epithelium occurs also over the whole extent of the respiratory mucous tract, commencing at the larynx, and ceasing only near the terminations of the bronchi. It is met with also in the female generative apparatus, commencing about the neck of the uterus, extending along the Fallopian tubes to their fimbriated extremities, and continued for a short distance along the peritoneal surface of the tubes; and in the male it occurs in the epididymis.

If a portion of ciliary mucous membrane from a living or recently dead animal be moistened, and examined with a microscope, the cilia are observed to be in constant motion, either whirling round their fixed extremities so that their ends describe circles, or waving continually backwards and forwards, and alternately rising and falling with a lashing or fanning movement. During the lashing movements each of the cilia performs a motion somewhat similar to that performed during the feathering of an oar in rowing; hence the general result of their movements is to produce a continuous current in a determinate direction; and this direction is invariably the same on the same surface, being usually towards its external orifice. In the production of such current probably consists the principal use of the cilia, which are thus enabled to propel the fluids or minute particles which come within the range of their influence, and to aid in their expulsion from the body.

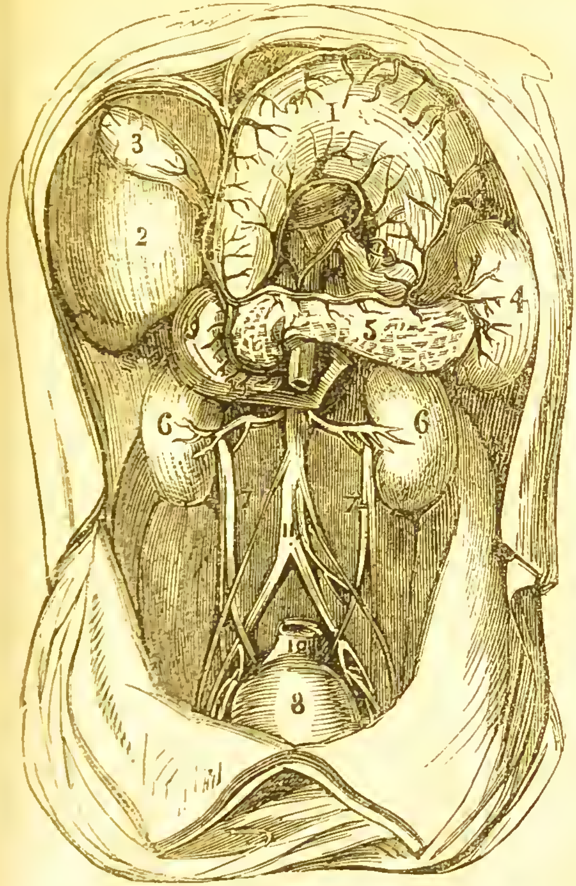
In the frog, triton, and probably most or all other naked Amphibia, the epithelium at and just within the neck or commencing dilatation of the Malpighian capsule (*in the kidneys*) is ciliated. This fact is, perhaps, connected with the peculiar arrangement of the seminal tubes or branches of the vasa deferentia, which open into one end of the Malpighian capsules, while the urine-tubes open into the others. The cilia work towards the seminal tubes, and would prevent the seminal fluid from mingling with the urine.

The following observations, by Dr. Smith, show the cause of liver diseases from residence in hot climates; the physical conformation not being adapted from infancy to the atmosphere, and from having been accustomed in this or other colder climates to breathe air more highly charged with oxygen:—"Pathology confirms the evidence derived from comparative anatomy and physiology. When the function of the lung is interrupted by disease, the activity of the liver is increased. In inflammation of the lung (pneumonia), in the deposition of adventitious matter in the lung (tubercles), by which the air vesicles are compressed and obliterated, the lung loses the power of decarbonizing the blood in proportion to the extent and severity of the disease with which it is affected. In this case the secretion of bile is increased. In diseases of the heart, the liver is enlarged. In the morbus cæruleus, the liver retains through life its fœtal state of disproportion. In the last place, there is a striking illustration of the respiratory action of the liver, in the vicarious office which it performs for the lung, during the heat of summer in cold, and all the year round in hot climates. In the heat of summer, and more especially in the intense and constant heat of a warm climate, in consequence of the rarefaction of the air, respiration by the lung is less active and efficient than in the winter of the cold climate. During the exposure of the body to this long-continued heat, there is a tendency to the accumulation of carbon in the blood. An actual accumulation is prevented, by an increased activity in the secretion of bile, to which the liver is stimulated by the heat. In order to obtain the material for the formation of this unusual quantity of bile, it abstracts carbon largely from the blood: to this extent it compensates for the diminished efficiency of the lung, and thus removes through the vena portæ that superfluous carbon which would otherwise have been excreted through the pulmonary artery next."

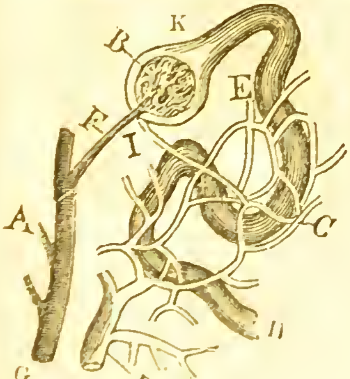


PLAN OF THE NERVES OF RESPIRATION.—(From Sir C. Bell's "Anatomy of the Human Body.")

A. Cerebrum.—B. Cerebellum.—CC. Spinal Marrow.—D. Tongue.—E. Larynx.—F. Bronchia. G. Heart.—H. Stomach.—I. Diaphragm.—J. Pons Varolii.—K. Glenoid cavity of scapula or shoulder-joint articulation of blade-bone.—1. 1. 1. Par Vagum, arising by a single set of roots, and passing to the larynx, the lungs, heart, and stomach.—2. 2. Superior laryngeal branches of the par vagum.—3. Recurrent or inferior laryngeal of the par vagum.—4. Pulmonic plexus of the par vagum.—5. Cardiac plexus of the par vagum.—6. Gastric plexus or corda ventriculi of the par vagum.—7. Fourth nerve, a branch of this system to the trochlearis muscle.—8. Respiratory nerve or portio dura to the muscles of the face, arising by a series of single roots.—9. Branches of the glosso-pharyngeal.—10. Origins of the superior external respiratory or spinal accessory nerve.—11. Branches of the last nerve to the muscles of the shoulder.—12. 12. 12. Internal respiratory, or the phrenic to the diaphragm. The origins of this nerve may be seen to pass much higher up than they are generally described.—13. Inferior external respiratory to the serratus magnus.



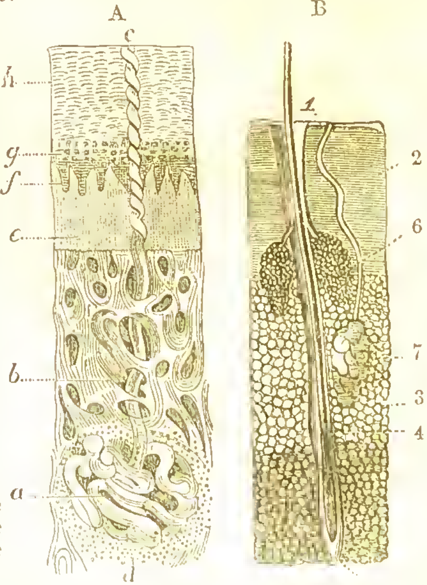
General view of the viscera of the abdomen.—1. Stomach raised; 2. under surface of liver; 3. gall-bladder; 4. spleen; 5. pancreas; 6. kidneys; 7. ureters; 8. urinary bladder; 9. portion of the intestine called duodenum; 10. portion of the intestine called rectum; 11. the aorta.—*Dr Smith.*



THE KIDNEYS.

The kidneys are situated in the back part of the body, behind the stomach, and just under the lower ribs. They are for purifying the blood, and also for carrying off the principal part of the liquid which has been taken into the stomach, and absorbed into the blood. To effect this, the blood is carried by veins into the substance of the kidneys, and there some undiscovered power extracts the urine from the blood, and along with it, impurities which, if suffered to remain in the blood, would bring on disease and death. The engraving will show the plan of the veins which circulate in the kidneys. It only shows a few of them; the number of similar ones in both kidneys can scarcely be numbered. For instance, the uriniferous tubes, H, are in bundles of twenty together. All these little suction pipes are at work at the same time, extracting the urine from the blood. G is the vein bringing the blood into the kidneys. A and B are small veins that branch off like twigs in great numbers from the main veins, and each ends in a tuft or ball of veins B. H is a uriniferous tube, one end of which, K, incloses the tuft of veins B, from which tuft it extracts the urine from the blood, and carries it down to H, and forward to large ducts which receive all the tubes, and convey their contents (urine) into the bladder. A vein, I, takes away the purified blood and unites with a number of other similar veins, E and C, which are performing the same office to other uriniferous tubes. These unite in the vein D, and carry the blood back through various intricate tubes again to the heart, to be again mixed with new material, which, after being pumped into the lungs to receive the oxygen from the air, again comes round to the same minute vessels, to be again purified. See *Kirke*, as follows:—

"SECRETION OF URINE.—The separation of urine from the blood is probably effected, like other secretions, by the agency of gland cells, and equally in all parts of the urine tubes; the urea and uric acid, and, perhaps, some of the other constituents existing ready formed in the blood, may need only separation, that is, they may pass from the blood to the urine without further elaboration; but this is not the case with some of the other principles of the urine, such as the acid phosphates and the sulphates, for these salts do not exist in the blood, and must be formed by the chemical agency of the cells. The large size of the renal arteries and veins permits so rapid a transit of the blood through the kidneys, that the whole of the blood is purified by them. The secretion of urine is rapid in comparison with other secretions, and as each portion is secreted it propels those already in the tubes onward into the pelvis. Thence through the ureter the urine passes into the bladder. Observations show how fast some substances pass from the stomach through the circulation, and through the vessels of the kidneys. Ferrocyanate of potash so passed, on one occasion, in one minute; vegetable substances, such as rhubarb, occupied from sixteen to thirty-five minutes."—*Kirke*, 339.



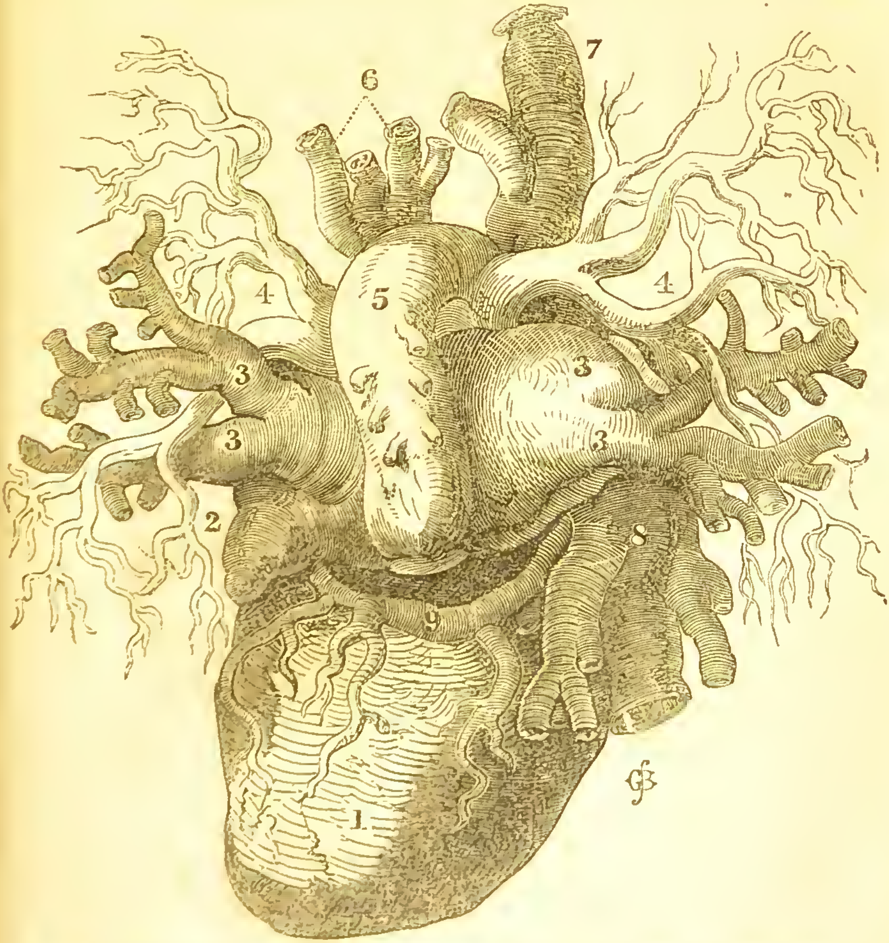
A is a sudoriferous gland; *b*, *c*, the duct, which comes out on the surface of the skin in a spiral form; it is calculated that there are 7 to 8 millions of these in the skin of the human body, measuring a total length of 28 miles, and they throw out about 2lbs. in insensible perspiration every 24 hours, besides what comes away by active perspiration; *d*, the subcutaneous cellular and adipose tissue; *e*, the derma; *f*, the papilla; *g*, the rete mucosum; *h*, the epidermis.

Sebaceous and sudoriparous glands of the skin. 1, the thin cuticle; 2, the cutis; 3, adipose tissue; 4, a hair, in its follicle (5); 6, sebaceous gland, opening into the follicle of the hair by an efferent duct; 7, the sudoriparous gland, through which the perspiration passes outwards.

SECTIONAL CUT OF THE SKIN HIGHLY MAGNIFIED.

Fig. *A*. shows the corkscrew pores of the skin, computed at eight millions in a human body, and twenty-eight miles in length; these discharge from two to three pounds of waste matter in twenty-four hours. *B* is a magnified section of the skin, showing the position and growth of a hair.

Structure of Skin.—Taking the skin, in the ordinary popular acceptation of the term, as the tegumentary coating of the body extending from the exterior surface to the muscles and other organs, it may be considered as consisting of three distinct layers, the innermost of which is composed of cellular and adipose matter of soft texture. The middle, called the *true skin, derma* or *corium*, is a strong and tough web of interlaced fibres, pervaded by blood-vessels, lymphatics, and nerves; and the external, called the *epidermis*, is a species of semi-transparent varnish, totally divested of all vascular or fibrous organs, and altogether insensible. The thickness of this covering, including all its three layers, though varying much in different parts of the body, nowhere exceeds a small fraction of an inch; and it will therefore be apparent that its structure can only be submitted to observation and analysis by means of the microscope.—*Lardner.*



THE HEART.—FROM SIR CHARLES BELL'S ANATOMY OF THE HUMAN BODY.

Fig. 1, left ventricle; 2, left auricle; 3, 3, 3, 3, pulmonic veins; 4, 4, two great branches of pulmonic artery; 5, aorta; 6, carotids and subclavians; 7, cava descendens; 8, cava ascendens, with all its branches from the liver; 9, great coronary vein running along the back of the heart, betwixt the auricle and ventricle, in a groove surrounded by fat.

On an average one hogshead of blood passes through the heart every hour, night and day, six ounces at every beat. Lardner says, that if a syphon gauge was inserted into an artery, a column of blood would rise in the tube to the height of seven and a half feet, so great is the force. He also says, "The arteries are flexible tubes composed of three coatings, the innermost or first of which is a thin and extremely smooth membrane lining the ventricle, and is adapted to allow free flow to the current of the blood. This tube is sheathed in another, consisting of a thick, yellowish, highly elastic substance, and of annular structure, and of involuntary muscular fibres, the rings composing it having their planes at right angles to the direction of the artery. This is again invested with an external coating of dense and close cellular texture. Thus, the structure of the arteries may be said to resemble the hose of a fire-engine.

Muscles of the Heart.—When the extensive apparatus of flexible pipes and tubes, through which the blood must be propelled from the heart to the extremities of the system, chiefly by the force imparted to it by the contractile power of the muscles surrounding the auricles and ventricles, is considered, it will be easily conceived that these muscles must be constructed with extraordinary contractile power.

MUSCLES OF THE AURICLES.

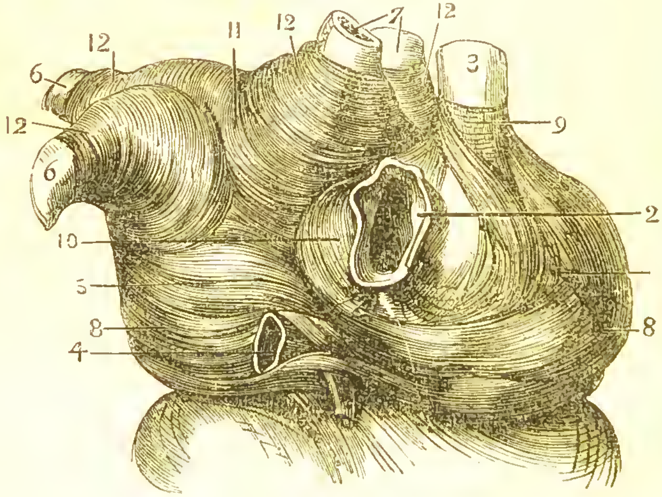
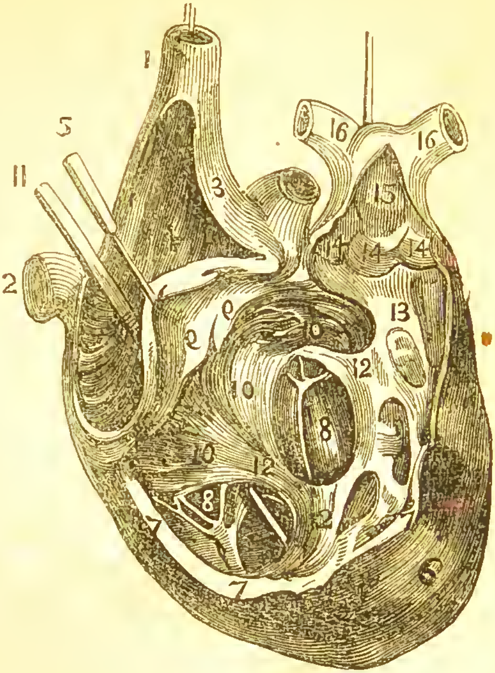


Fig. 317.*

1. Right auricle. 2. Embouchure of inferior hollow vein. 3. Embouchure of superior hollow vein. 4. Embouchure of coronary vein in right auricle. 5. Left auricle. 6, 6. Left pulmonary veins. 7, 7. Right pulmonary veins. 8, 8. Muscles surrounding right and left auriculo-ventricular orifices. 9. Muscles surrounding embouchure of superior vena cava. 10. Muscles surrounding embouchure of inferior vena cava. 11. Muscles separating right from left pulmonary veins. 12, 12, 12, 12. Muscles surrounding embouchures of these veins.—*Dr. Lardner. In rheumatic fever these muscles are often affected from the action of medicine and blisters, weakening the whole system; and hence the frequency of heart disease after rheumatic fever.*

* Sappey.



View of the heart, with the great vessels in connexion with it, on the right side, its different chambers being laid open, and its structure shown. 1. The vena cava superior. 2. The vena cava inferior. 3. Cut edge of the right auricle turned aside to show, 4, the cavity of the right auricle, into which the two venæ cavæ pour the blood returned from all parts of the body. 5. Hook suspending the reflected portion of the wall of the auricle. 6. The right ventricle. 7. Cut edge of the wall of the ventricle, a portion of which has been removed to show, 8, the cavity of the ventricle. 9. Situation of the opening between the auricle and ventricle, called the auricular orifice of the ventricle. 10. Valve placed between the auricles and ventricles, one margin being firmly tached to the auriculo-ventricular opening in its entire extent, the other lying loose in the cavity of the ventricle. 11. Probe passed from the auricle into the ventricle underneath the valve, showing the course of the blood from the former chamber to the latter. 12. The columnæ carneæ attached by one extremity to the walls of the ventricle, the other extremity ending in tendinous threads attached to the loose margin of the valve. 13. Passage to the pulmonary artery. 14. The three semilunar valves placed at the commencement of, 15, the pulmonary artery. 16. The two great branches into which the trunk of the pulmonary artery divides, one branch going to each lung.—*Dr. Smith.* A membranous bag, called the pericardium, contains the heart; see page 387.

The following is from Dr. Smith:—"No one is able by a voluntary effort to expel the whole contents of the lungs. Observation and experiment lead to the conclusion that the lungs, when moderately distended, contain at a medium about twelve pints of air. As one pint is inhaled at an ordinary inspiration, and somewhat less than the same volume is expelled at an ordinary expiration, there remain present in the lungs, at a minimum, eleven pints of air. There is one act of respiration to four pulsations of the heart; and, as in the ordinary state of health there are seventy-two pulsations, so there are eighteen respirations in a minute, or 25,920 in the twenty-four hours. About two ounces of blood are received by the heart at each dilatation of the auricles; about the same quantity is expelled from it at each contraction of its ventricles; consequently, as the heart dilates and contracts seventy-two times in a minute, it sends thus often to the lungs, there to be acted upon by the air, two ounces of blood. It is estimated by Haller that 10,527 grains of blood occupy the same space as 10,000 grains of water; so that if one cubic inch of water weighs 253 grains, the same bulk of blood will weigh 266½ grains. It is ordinarily estimated that on an average one circuit of the blood is performed in 150 seconds; but it is shown that the quantity of air always present in the lungs contains precisely a sufficient quantity of oxygen to oxygenate the blood, while flowing at the ordinary rate of seventy-two contractions of the heart per minute, for the exact space of 160 seconds. It is therefore highly probable that this interval of time, 160 seconds, is the exact period in which the blood performs one circuit, and not 150 seconds, as former observations had assigned. If this be so, then 540 circuits are performed in the twenty-four hours; that is, there are three complete circulations of the blood through the body in every eight minutes of time. But it has been shown that the weight of the blood is to that of water as 1.0527 is to unity, and that, consequently, 10,527 grains of blood are in volume the same as 10,000 grains of water. From this it results that if in the human adult two ounces of blood are propelled into the lungs at each contraction of the heart, that is, seventy-two times in a minute, there are in the whole body precisely 384 ounces, or twenty-four pounds avoirdupois, which measure 692.0657 cubic inches, or within one cubic inch of twenty imperial pints, which measure 693.1847 cubic inches. By an elaborate series of calculations from these data Mr. Finlaison has deduced the following general results:—1. As there are four pulsations to one respiration, there are eight ounces of blood, measuring 14.418 cubic inches, presented to 10.5843 grains of air, measuring 34.24105 cubic inches. 2. The whole contents of the lungs is equal to a volume of very nearly 411 cubic inches full of air, weighing 127 grains, of which 29.18132 grains are oxygen. 3. In the space of five-sixth parts of one second of time, two ounces or 960 grains weight of blood, measuring 3⅗ or 3.60451 cubic inches are presented for aëration. 4. Therefore the air contained in the lungs is 114 times the bulk of the blood presented, while the weight of the blood so presented is 7½ times as great as the weight of the air contained. 5. In one minute of time the fresh air inspired amounts to 616⅓ cubic inches, or, as nearly as may be, eighteen pints, weighing 190½ grains. 6. In one hour the quantity inspired amounts to 1066⅔ pints, or 2 hogsheads, 20 gallons, and 10⅔ pints, weighing 23¾ ounces and 31 grains. 7. In one day it amounts to 57 hogsheads, 1 gallon, and 7¼ pints, weighing 571½ ounces and 25 grains. 8. To this volume of air there are presented for aëration in one minute of time 144 ounces of blood, in volume 259½ cubic inches, which is within 18 cubic inches of an imperial gallon; 9, in one hour 540 pounds avoirdupois, measuring 449¼ pints, or 1 hogshead and 1¼ pints; and 10, in the twenty-four hours, in weight 12,960 pounds; in bulk 10,782½ pints, that is, 24 hogsheads and 4 gallons. 11. Thus, in round numbers, there flow to the human lungs every minute nearly 18 pints of air (besides the 12 pints constantly in the air vesicles) and nearly 8 pints of blood; but in the space of twenty-four hours, upwards of 57 hogsheads of air and 24 hogsheads of blood."

The following is from Dr. Smith:—"All the arteries of the body proceed from two trunks; that connected with the pulmonic circle—the pulmonary artery, and that connected with the systemic circle—the aorta. These vessels, as they go out from the heart and proceed to their ultimate termination, are arborescent, that is, they successively increase in number and diminish in size, like the branches of a tree going off from the trunk. Each trunk usually ends by dividing into two or more branches, the combined area of which is always greater than that of the trunk from which they spring, in the proportion of about one and a half to one. As the branch proceeds to its ultimate termination it divides and subdivides, until at length the vessel becomes so minute, that it can no longer be distinguished by the eye. These ultimate branches are called capillary vessels, from their hair-like smallness (Fig. 119, 4); but this term does not adequately express their minuteness. It has been stated that the red particle of the blood, at the medium calculation, is not more than the three-thousandth part of an inch in diameter; yet vast numbers of the capillary vessels are so small that they are incapable of admitting one of these particles, and receive only the colourless portion of the blood. Every portion of an artery, by reason of the elasticity of its coats, preserves nearly a cylindrical form; and as the area of the branches is greater than that of the trunks, the blood, in proceeding from the heart to the capillaries, though passing through a series of descending cylinders, is really flowing through an enlarging space. The disposition of the veins, like that of the arteries, is arborescent, but in an inverse order; for the course of the veins is from capillary vessels to visible branches, and from visible branches to large trunks (Fig. 120, 1, 2, 3). In every part of the body where the capillary arteries terminate the capillary veins begin, and the branches uniting to form trunks, and the small to form large trunks, and the trunks always advancing towards the heart, and always increasing in magnitude as they approach it, form at length the two veins which, it has been stated, return all the blood of the body to the right auricle of the heart. The veins are very much more numerous than the arteries, for they often consist of double sets, and they are at the same time more capacious and more extensible. Reckoning the whole of the blood at one-fifth of the weight of the body, it is estimated that, of this quantity, about one-fourth is in the arterial and the remaining three-fourths in the venous system. The combined area of the branches of the veins is much greater than that of the two trunks in which they terminate (Fig. 120, 1, 2, 3, 4): the blood, therefore, in returning to the heart, is always flowing from a large into a smaller space. The divisions and subdivisions of the artery freely communicate in all parts of the body by means of what are called anastomosing branches, and this communication of branch with branch and trunk with trunk is termed anastomosis. The

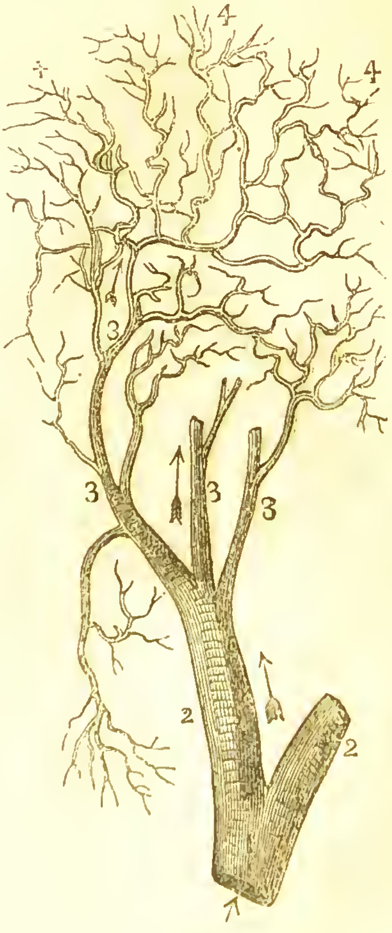


Fig. 119.

View of the manner in which an artery divides and sub-divides into its ultimate branches. 1, trunk of the artery; 2, large branches into which it subdivides; 3, small branches, successively becoming smaller and smaller, until they terminate in, 4, the capiliary branches.

same intercommunication, but with still greater freedom and frequency, takes place among the branches of the veins. In both orders of vessels the communication is frequent in proportion to the minuteness of the branch and its distance from the heart. It is also more frequent in proportion as a part is exposed to pressure; hence the minute arteries and veins about a joint are distinguished for the multitude of their anastomosing branches; and above all, it is frequent in proportion to the importance of the organ; hence the most remarkable anastomosis in the body is in the brain. By this provision care is taken that no part be deprived of its supply of blood; for if one channel be blocked up, a hundred more are open to the current, and the transmission of it to any particular region or organ by two or more channels, instead of through one trunk, is a part of the same provision. Thus the fore-arm possesses four principal arteries with corresponding veins, and the brain receives its blood through four totally independent canals."

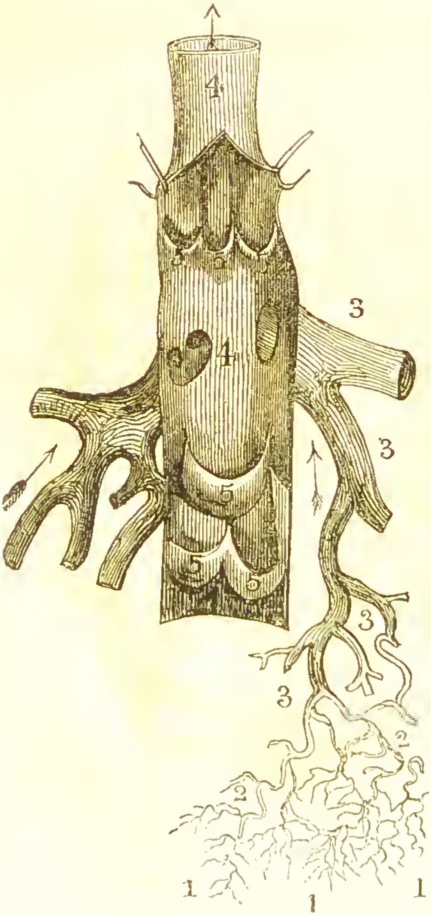
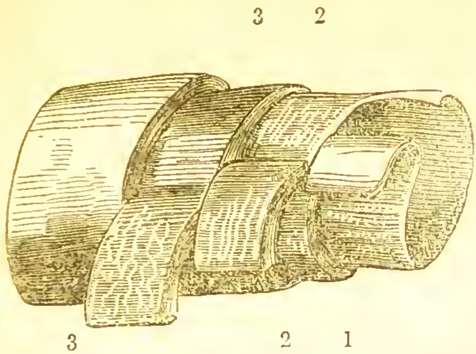


Fig. 120.

View of the manner in which the minute branches of the vein unite to form the larger branches and the trunks. 1, capillary venous branches; 2, small branches formed by the union of the capillary; 3, larger branches formed by the union of the smaller, and gradually increasing in size, to form the great trunk; 4, a portion of which is laid open to show its inner surface and the arrangement of, 5, the valves formed by its inner coat.

Fig. 118.



Portion of an artery, showing the several coats of which it is composed separated from each other. 1, the internal or serous coat; 2, the middle or fibrous coat; 3, the external or cellular coat.—*Dr. Smith.*

General Ramifications of the Blood-vessels.—As has been already observed, the arteries and veins distribute themselves in innumerable ramifications from the heart, through all parts of the body. They spread through the muscles, amid whose fibres they ramify; and penetrate the very bones, whose structure is filled with them. We have already given, in Fig. 314, a general view of the manner in which the arteries ramify; and the veins differ from the arrangement there represented only in this, that while the larger arteries are generally confined to certain depths within the surface, veins of large size ramify superficially also in immense numbers, so as to be rendered visible in various parts of the body as blue lines seen through the semi-transparent texture of the epidermis, or superficial skin.

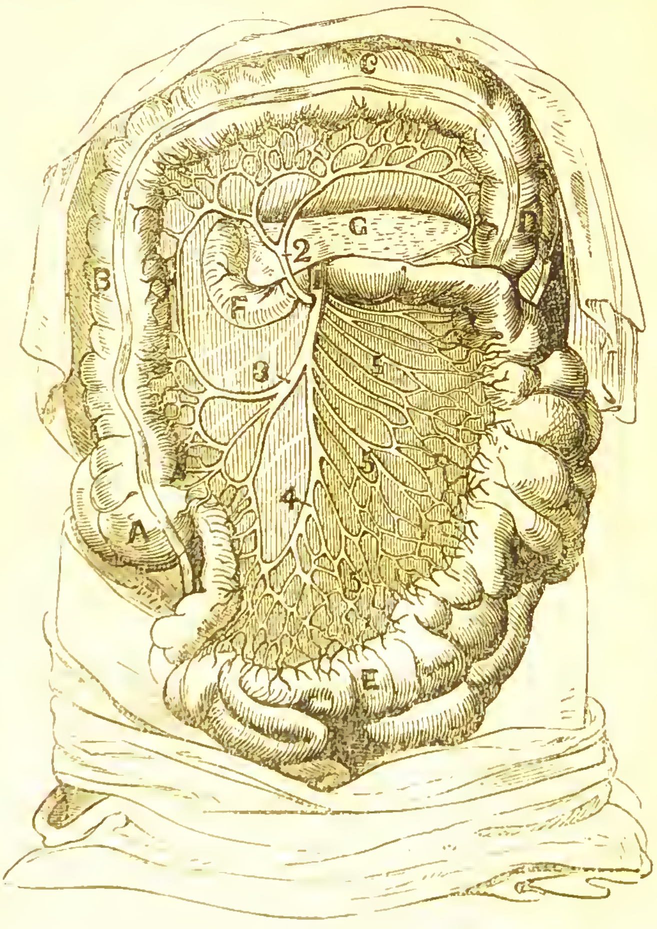


Fig. 328.—BLOOD-VESSELS OF THE MESENTERY

It may be here stated that the skin, properly so called, is that covering having a very sensible thickness, which is taken between the fingers when we pinch the surface of the body, as, for example, the back of the hand or the neck. This consists of two distinct parts; the inner and thicker part, called the true skin, *cutis* or *derma*, a Greek word signifying the skin; and the superficial or thinner part, called the *cuticle, epidermis,* or covering of the skin, from a Greek word ἐπὶ (*epi*), signifying *upon* or *over*. The membrane thus named is

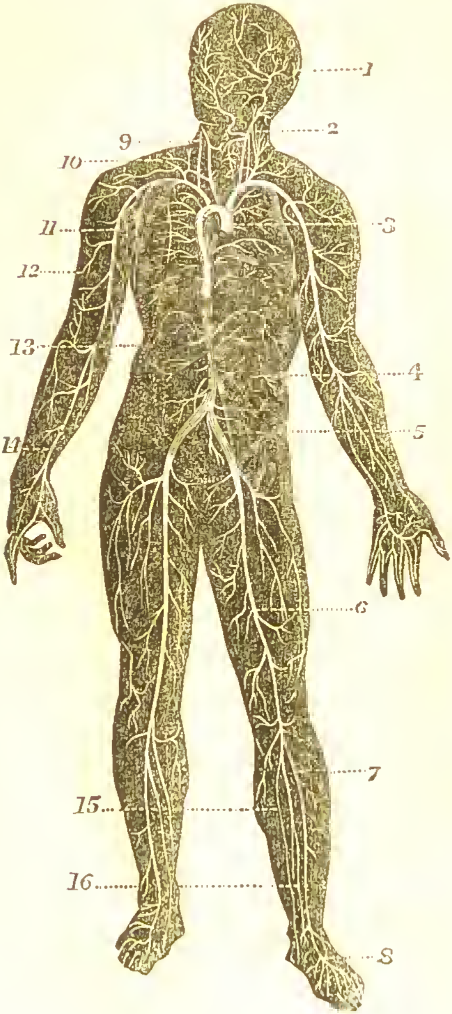


Fig. 315.—*Lardner*.

THEORETICAL DIAGRAM OF THE ARTERIAL OR PURE BLOOD CIRCULATION; THE VENOUS OR EXHAUSTED BLOOD RETURNS TO THE HEART BY ANOTHER SET OF VEINS.

The following is from Dr. Lardner's beautiful work, which should be in every library; it is very cheap, price 10s., with its 520 finely executed engravings.

Fig. 1, temporal artery; 2, carotid do.; 3, aorta do.; 4, renal do.; 5, iliac do.; 6, femoral do.; 7, anterior tibial do.; 8, tarsal do.; 9, vertebral do.; 10, subclavian do.; 11, axillary do.; 12, brachial do.; 13, cœliac do.; 14, radial do., 15, posterior tibial do.; 16; peroneal do.

GENERAL VIEW OF THE ARTERIAL SYSTEM.—From the upper part of the crook of the aorta branches diverge, two of which, bending under the clavicles, descend along the arms, taking the name of the brachial arteries; and at the point where the aorta descends towards the navel, other branches diverge right and left, descending along the legs, where they take the name of femoral arteries. There are numerous other ramifications, as shown in the general illustration of the arterial system, where the names of the principal arteries are indicated. (*See Observations on the Circulation, page* 25 *of this book.*)

that which is raised and separated from the derma by a blister. Although it would be impossible to give, in a work like the present, figures which would convey any notion of the local distribution of the blood-vessels through the body, other than the general representation of the arterial system given in Fig. 314, it may, nevertheless, be interesting to readers who are not professionally medical, to see the wonderful structure of the vascular system in some of the principal parts of the human economy.

Blood-vessels of the Mesentery.—In Fig. 328 are represented the trunk (1) and the innumerable ramifications and anastomoses (2, 3, 4, 5) of the artery which spreads over the *mesentery*, a membranous structure connected with the intestines.

BLOOD-VESSELS OF THE LEG AND FOOT.

In like manner, in Fig. 332, are represented the principal arteries, and in Fig. 333 the principal veins, which ramify over the leg and foot.

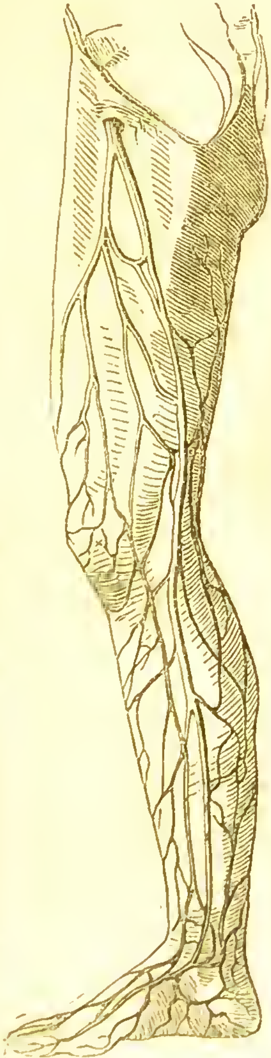


Fig. 332.

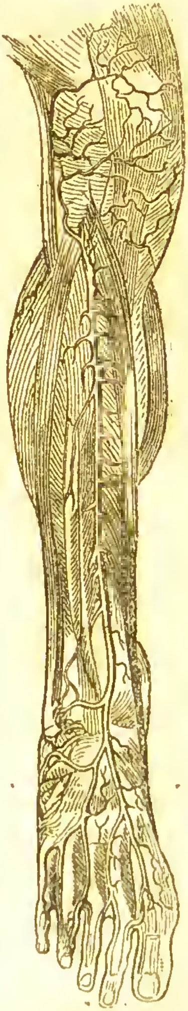


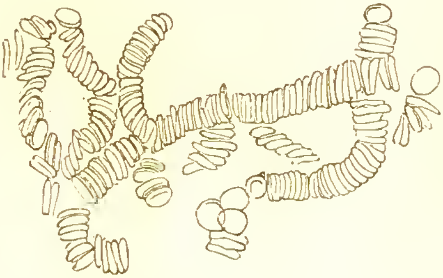
Fig. 333.

All the animal and saline matter held in solution in the serum being removed the fluid that remains is water, the proportion of which in 1000 parts varies from

853, the maximum, to 779, the minimum. The second constituent of the blood, the fibrin, is the most essential portion of it, being invariably present, whatever other constituents be absent. While circulating in the living vessel, fibrin is fluid and transparent; by the process of coagulation, it is converted into a solid and opaque substance of a yellowish white colour, consisting of stringy fibres, disposed in striæ, which occasionally form a complete network (Fig. 111). These fibres are exceedingly elastic. In their general aspect and their chemical relations they bear a close resemblance to pure muscular fibre, that is, to muscular fibre deprived of its enveloping membrane and of its colouring matter, and they form the basis of muscle. According to M. le Canu, the proportion of the fibrin varies from seven parts in 1000, the maximum, to one part in 1000, the minimum, the medium of twenty experiments being four parts in 1000.

The third constituent of the blood, the matter upon which its red colour depends, though, as has been stated, entirely absent in certain classes of animals, and in all animals in some parts of their body, seems to be essential, at least to the organic organs, whenever they perform their functions with a high degree of perfection. Thus in the lowest class of vertebrated animals, the fish, while the principal part of its body receives only a colourless fluid, its organic organs, as the heart, the gills, the liver, are provided with red blood. The red matter, wherever present, is invariably heavier than the fibrin, and consequently, during the process of coagulation, it gradually subsides to the lower surface, and is always found forming the bottom of the clot. Its proportion to the other constituents varies very remarkably, the maximum being 148, the minimum 68, and the medium 108, in 1000 parts of blood.

From Dr. Smith.—"The red particle of the human blood is circular. It is circular also in all animals belonging to the class mammalia; but in the three lower classes of vertebrated animals, the bird, the reptile, and the fish, it is elliptical.



Columnar arrangement which the particles of the human blood assume immediately after it is drawn from its vessel.

Fig. 113.

"When perfect and entire, the red particles indicate a disposition to arrange themselves in a definite mode. They combine spontaneously into columns of variable length. In order to observe this tendency, a small quantity of blood, the moment it is taken from its living vessel, should be placed between two strips of glass, or covered with a bit of talc, and placed under the microscope. When thus arranged, a considerable agitation at first takes place among the particles. As soon as this motion subsides, the particles apply themselves to each other by their broad surfaces, and thus form piles or columns of considerable length (Fig. 113). The columns often again combine one among another, the end of one being attached to the side of another, sometimes producing very curious ramifications (Fig. 113). In like manner, the elliptical particles apply themselves to each other by their broad surfaces, but they are not so exactly matched as the circular, one particle partially overlapping another, so that they form less regular columns than the circular.

"The red particles, as far as is known, constitute a distinct and peculiar form of animal matter: the red colour, according to some, depending on an impregnation of iron; according to others, on an animal substance of a gelatinous nature. The exact proportion of the different substances contained in the blood, according to the most recent analysis of it, that by M. le Canu, is as follows, namely:—

Water	786·500
Albumen	69·415
Fibrin	3·565
Colouring matter	119·626
Crystallizable fatty matter	4·300
Oily matter	2·270
Extractive matter, soluble in alcohol and water	1·920
Albumen combined with soda	2·010
Chloruret of sodium and potassium, alkaline phosphate, sulphate, and subcarbonates	7·304
Subcarbonate of lime and magnesia, phosphates of lime, magnesia and iron, peroxide of iron	1·414
Loss	2·586
	1000·000

"From the results of this analysis it is manifest that all the proximate principles of which the different tissues are composed exist in the blood, namely, albumen, the proximate principle forming the basis of membrane; fibrin, the proximate principle forming the basis of muscle; fatty matter, forming the basis of nerve and brain; and various saline and mineral substances, forming a large part of bone, and entering more or less into the composition of every fluid and solid."—*Dr. Smith.*

VEIN.—(*Dr. Hooper.*) *Vena.* A long membranous canal, which does not pulsate, and returns the blood from the arteries to the heart. All veins originate from the extremities of arteries, or, more properly speaking, from the capillary vessels which connect the arteries and veins, and terminate in the auricles of the heart; *e. g.* the venæ cavæ in the right, and the pulmonary veins in the left auricle. They are composed, like arteries, of three tunics or coats, which are much more slender than in the arteries, and are supplied internally with semilunar membranes, or folds, called valves. The blood is returned from every part of the body, except the lungs, into the right auricle, from three sources:—1. The *vena cava superior,* which brings it from the head, neck, thorax, and superior extremities. 2. The *vena cava inferior,* from the abdomen and inferior extremities. 3. The *coronary vein* receives it from the coronary arteries of the heart. 1. The *vena cava superior.* This vein terminates in the superior part of the right auricle, into which it evacuates the blood from the *right* and *left subclavian vein,* and the *vena azygos.* The right and left subclavian veins receive the blood from the head and upper extremities, in the following manner:—The veins of the fingers, called *digitals,* receive the blood from the digital arteries, and empty it into the *cephalic of the thumb,* which runs on the back of the hand along the thumb, and evacuates itself into the external radial. The *salvatella,* which runs along the little finger, unites with the former, and empties its blood into the internal and external cubital veins. At the end of the fore-arm are three veins, called the great cephalic, the basilic, and the median. The *great cephalic* runs along the superior part of the fore-arm, and receives the blood from the external radial. The *basilic* ascends on the under side, and receives the blood from the *external* and *internal cubital veins,* and some branches which accompany the brachial artery, called *venæ satellites.* The *median* is situated in the middle of the fore-arm, and arises from the union of several branches. These three veins all unite above the bend of the arm, and form the *brachial vein,* which receives all their blood, and is continued into the axilla, where it is called the *axillary vein.* This receives also the blood from the scapula, and superior and inferior parts of the chest, by the *superior* and *inferior thoracic vein,* the *vena muscularis,* and the *scapularis.* The axillary vein then passes under the clavicle, where it is called the *subclavian,* which unites with the external and internal jugular veins and the vertebral vein, which brings the blood from the vertebral sinuses; it receives also the blood from the *mediastinal, pericardiac, diaphragmatic, thymic, internal mammary*, and *laryngeal veins*, and then unites with its fellow, to form the vena cava superior, or, as it is sometimes called, *vena cava descendens*. The blood from the external and internal parts of the head and face is returned, in the following manner, into the external and internal jugulars, which terminate in the subclavians:—The *frontal, angular, temporal, auricular, sublingual*, and *occipital* veins receive the blood from the parts after which they are named; these all converge to each side of the neck, and form a trunk called the *external jugular vein*. The blood from the brain, cerebellum, medulla oblongata, and membranes of these parts, is received into the lateral sinuses, or veins of the dura mater, one of which empties its blood through the foramen lacerum in basii cranii on each side into the *internal jugular*, which descends in the neck by the carotid arteries, receives the blood from the *thyroideal* and *internal maxillary veins*, and empties itself into the subclavians within the thorax. The vena azygos receives the blood from the *bronchial, superior, æsophageal, vertebral*, and *intercostal veins*, and empties it into the superior cava. 2. *Vena cava inferior*. The vena cava inferior is the trunk of all the abdominal veins, and those of the lower extremities, from which parts the blood is returned in the following manner. The veins of the toes, called the *digital veins*, receive the blood from the digital arteries, and form on the back of the foot three branches, one on the great toe, called the *cephalic*, another which runs along the little toe, called the *vena saphena*, and a third on the back of the foot, *vena dorsalis pedis;* and those on the sole of the foot evacuate themselves into the *plantar veins*.

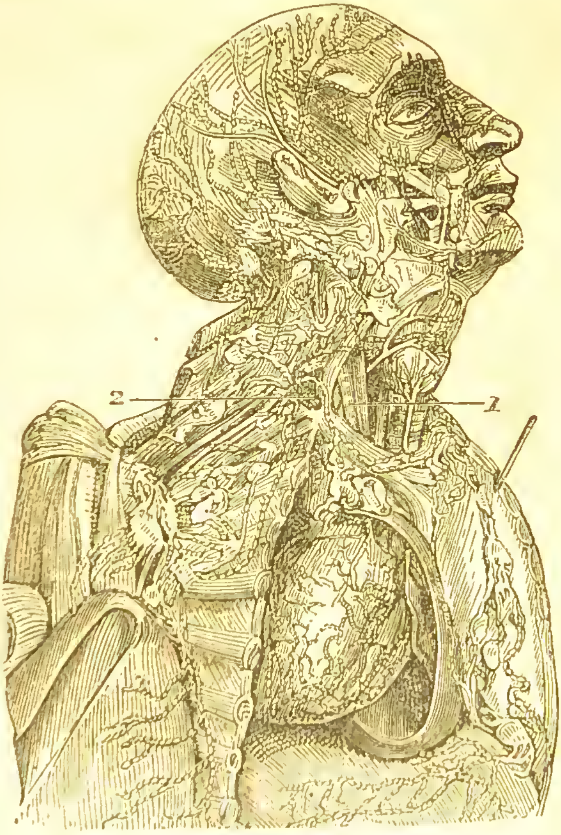
The three veins on the upper part of the foot, coming together above the ankle, form the *anterior tibial;* and the plantar veins, with a branch from the calf of the leg, called the *sural vein*, form the *posterior tibial;* a branch also ascends in the direction of the fibula, called the *peroneal vein*. These three branches unite before the ham into one branch, the *subpopliteal vein*, which ascends through the ham, carrying all the blood from the foot: it then proceeds upon the anterior part of the thigh, where it is termed the *crural* or *femoral vein*, receives several muscular branches, and passes under Poupart's ligament into the cavity of the pelvis, where it is called the *external iliac*. The arteries which are distributed about the pelvis evacuate their blood into the *external hæmorrhoidal veins*. the *hypogastric veins*, the *internal pudendal*, the *vena magna ipsius penis*, and *obturatory veins*, all of which unite in the pelvis, and form the *internal iliac vein*. The external iliac vein receives the blood from the external pudendal veins, and then unites with the internal iliac at the last vertebra of the loins, forming the *common iliac;* the two common iliacs then form the *vena cava inferior*, or *ascendens*, which ascends on the right side of the spine, receiving the blood from the *sacral, lumbar, emulgent, right spermatic veins*, and the *vena cava hepatica;* and, having arrived at the diaphragm, it passes through the right foramen, and enters the right auricle of the heart, into which it evacuates all the blood from the abdominal viscera and lower extremities.

Vena cava hepatica.—This vein ramifies in the substance of the liver, and brings the blood into the vena cava inferior from the branches of the *vena portæ*, a great vein which carries the blood from the abdominal viscera into the substance of the liver. The trunk of the vena portæ, about the fissure of the liver, in which it is situated, is *divided* into the hepatic and abdominal portions. The *abdominal portion* is composed of the *splenic, meseraic*, and *internal hæmorrhoidal veins*. These three venous branches carry all the blood from the stomach, spleen, pancreas, omentum, mesentery, gall-bladder, and the small and large intestines, into the *sinus* of the vena portæ. The *hepatic portion* of the vena portæ enters the substance of the liver, divides into innumerable ramifications, which secrete the bile, and the superfluous blood passes into corresponding branches of the *vena cava hepatica*.

The *action of the veins*.—Veins do not pulsate: the blood which they receive from the arteries flows through them very slowly, and is conveyed to the right auricle of the heart, by the contractility of their coats, the pressure of the blood from the arteries, called the *vis à tergo*, the contraction of the muscles, and respiration; and it is prevented from going backwards in the vein by the valves, of which there are a great number.

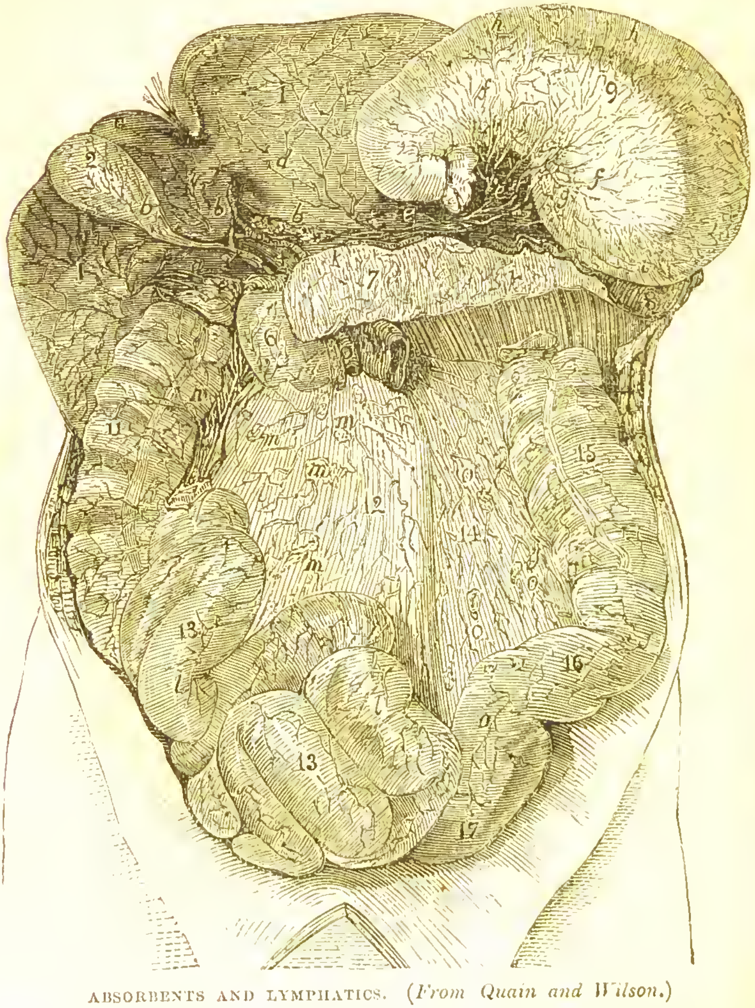
PULSE. *Pulsus.* The beating of the heart and arteries.—The pulse affords most important indications in the diagnosis, prognosis, and treatment of disease. It is usually felt by pressing the radial artery at the wrist; and some skill and experience are requisite in the application of the fingers, in order to derive all the information which the pulse is capable of affording. In the healthy subject, the pulse is very various in force and frequency, according to the constitution of the individual; it also differs greatly at different periods of life, in a general way diminishing in frequency from infancy to old age. The pulse is generally more frequent in women, and persons of an irritable temperament, than in males and those who have less mobility of system. The following is the usual number of pulsations in a minute at different periods of life:—one year, 120 to 130; five or six years, 100 to 106; seven years, 90 to 95; puberty, 80; adult age, 65 to 75; sixty years, 60; old age, 50.

SOURCES OF LYMPH.—The liquid part of the blood, called the *liquor sanguinis*, or *plasma*, charged with nutritive principles, exudes by the process of exosmose through the coats of the capillaries, and being diffused among the tissues, supplies to them respectively the matters proper for their repair. The residuum of the plasma is absorbed by the multitude of lymphatics which pass through the same parts, into which it enters by the process of endosmose. In this state it constitutes lymph, and is carried back by the lymphatic vessels to the subclavian veins. — *Dr. Lardner.*



LYMPHATICS OF THE UPPER PART OF THE TRUNK AND HEAD.

STRUCTURE OF THE LYMPHATIC GLANDS.—It was formerly supposed that, in passing through the glands, the lymphatics entered into direct communication with the blood-vessels. The researches of modern physiologists have proved this to be an error. A lymphatic gland consists of a mass of minute lymphatic vessels, among which numerous sanguiferous capillaries (blood-vessels) ramify. Between the two sets of vessels there is no inosculation. They conduct their respective fluids altogether independently of each other. The lymph which passes into the gland by the afferent vessels, passes out of it by the efferent ones, having in the gland been infinitely subdivided by the minute and multiplied tubes which form the substance of the gland. Whether there is any interchange between the blood of the capillaries in the gland by exudation or exosmose and the lymph of the smaller lymphatic vessels, is mere matter of conjecture, unsupported as yet by any results of immediate observation.

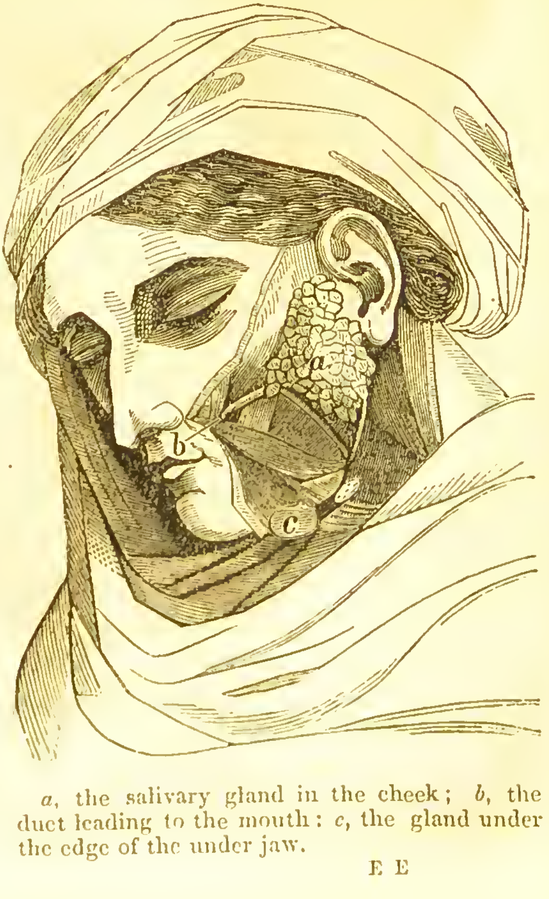


ABSORBENTS AND LYMPHATICS. (*From Quain and Wilson.*)

Nos. 1, 1, the under surface of the liver; 2, the gall-bladder; 3, the ductus communis choledochus; 4, the portal vein; 5, the hepatic artery; 6, the descending portion of the duodenum; 7, the pancreas; 8, the lower part of the spleen projecting below the great end of the stomach; 9, the stomach; 10, the superior mesenteric artery and vein resting upon the transverse portion of the duodenum; 11, the ascending colon; 12, the mesentery; 13, the small intestines; 14, the layer of peritoneum which connects the descending colon to the posterior wall of the abdomen; 15, the descending colon; 16, the sigmoid flexure; 17, the rectum.

a, a group of lymphatics from the right lobe of the liver, passing to its posterior border to terminate in the commencement of the thoracic duct; *b*, *b*, a second group from the gall-bladder and middle portion of the liver, proceeding along the course of the hepatic vessels between the layers of the lesser omentum; *c*, one or two lymphatic trunks passing to the upper surface of the liver; *d*, *d*, lymphatics from the left lobe passing to the coronary glands, *e*, *e*; *f*, *f*, lymphatics from the stomach converging to the group of glands, *g*, *g*, placed along the concave border of the organ; *h*, *h*, lymphatics converging to the glands on convex border of the stomach; *i*, lymphatics from the great end of the stomach descending to the splenic glands; *k*, *k*, pancreatic lymphatic vessels; *l*, *l*, lacteal vessels originating upon the surface of the small intestine, and converging to the root of the mesentery; *m*, *m*, mesenteric glands; *n*, *n*, lymphatic vessels from the ascending colon terminating in glands along its fixed border; *o*, *o*, lymphatics and glands from the descending colon converging towards the vertebral column and root of the mesentery.

FORMATION OF SALIVA FOR THE MOUTH.—In the oral cavity, on each side, near the second double tooth in the upper jaw, the mucous membrane forms a little tube (*b*), which ascends along the cheek, and branches out and forms a gland in front of the lower part of the ear (*a*). Another smaller one of these glands lies just within the lower edge of the under jaw, on each side (*c*); and a third and still smaller pair lie under the roots of the tongue, uniting on the middle line. The ducts of these last two pairs open into the mouth in front of the roots of the tongue and near its bridle. These are called the salivary glands. They secrete the saliva or the solvent fluid of the mouth, and pour it into the oral cavity freely during the process of mastication, and whenever any exciting substance is taken into the mouth. The smell, and sight, and even the thoughts of savory or disgusting substances, and of other objects of desire, will also cause an increased secretion and flow of saliva.—*Graham.*



a, the salivary gland in the cheek; *b*, the duct leading to the mouth: *c*, the gland under the edge of the under jaw.

The following is also from Lardner's Animal Physics:—*Beautiful Structure of the Lymphatics.*—There is no part of the organization the structure of which presents a spectacle more curious and beautiful than the lymphatics. We shall, therefore, give here some examples of their structure. In Fig. 347 are shown the chyliferous vessels of the *mesentery*. These are spread over the intestines on the side, whence they absorb the chyle, and, passing over the mesentery, are transmitted through a multitude of glands from which larger vessels issue, which eventually terminate in the thoracic duct.

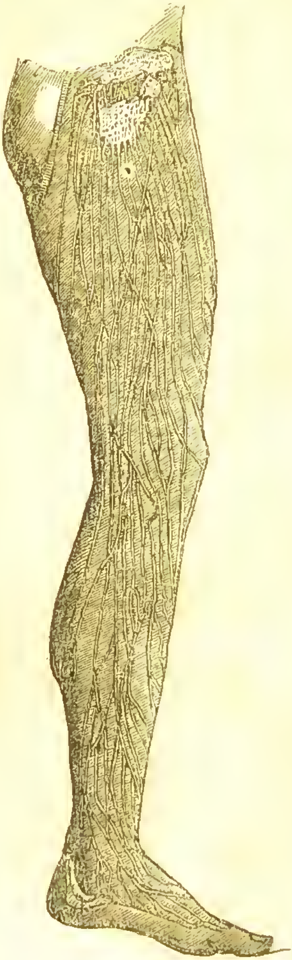


Fig. 350
LYMPHATICS OF THE LEG AND FOOT (Mascagni)

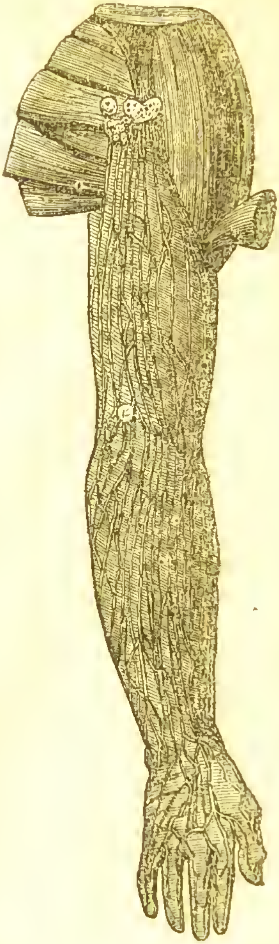


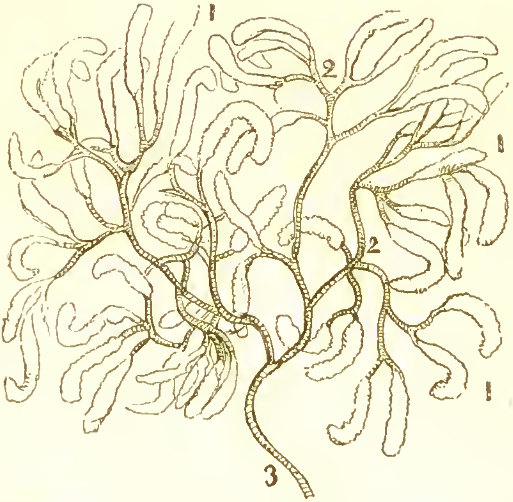
Fig. 349.
LYMPHATICS OF THE ARM AND HAND (Mascagni).

The Lymphatics of all Vertebrate Animals of the inferior classes are similar to those of man. In the case of certain reptiles—the frog, for example—their structure is often more complicated than in warm-blooded animals. In the course of the lymphatic vessels of these are found certain enlargements, provided with muscular fibres, which have been called *lymphatic hearts*, whose contraction produces the same effects in propelling the lymph as the heat produces upon the circulation of the blood. In both reptiles and fishes the lymphatic vessels are relatively more voluminous than in Mammifers or birds. Lymphatic glands, however, are generally absent in these classes. The valves are less numerous, and in some cases altogether absent. In the larger class of Mammifers, the lymphatic and chyliferous vessels converge in a single thoracic duct, as in man. Frequently, however, this canal consists of two ducts, which remain separate up to the point where they enter the left subclavian vein. In other cases, although the thoracic duct is double in its pectoral part, and as far as the commencement of the cervical part, the two branches unite at the moment of joining the venous system.—*The Lymphatic Vessels of Birds* form by their union two thoracic ducts, which appear on each side of the base of the neck, uniting with the jugular veins.—*The Lymphatics of Reptiles and Fishes* terminate in the venous system by communications more or less numerous. The most frequent and largest of these communications are made with veins in the immediate neighbourhood of the head. In mammifers generally, the lymphatic glands are numerous, and it is probable that they have no direct communication with the venous system. *The Invertebrate Classes* have neither chyliferous nor lymphatic vessels. There is no proper distinction between the blood and the product of digestion, or it may rather be said that this product constitutes the blood itself. In those which have a complete circulating apparatus with arteries distinct from the veins—such, for example, as the mollusca—it is probable that the veins which circulate over the intestines absorb the products of digestion, and transfer them to the region of the respiratory organs. In arachnida, crustacea, and annelida, whose apparatus of circulation is less complete, the product of digestion passes through the coats of the intestines, and is diffused through the regions which surround the digestive canal, and from thence, by imbibition and endosmose, is transmitted to the circulatory vessels.—*In Insects* the liquid product of digestion, after it has passed the coats of the digestive tube, does not pass into any circulating vessels properly so called; it is merely diffused through the cellular interstices which exist among the organs, and thence into the organs themselves.—*Radiata*, expecting the echini and holothuria, have no vascular system, and the products of digestion pass through the sides of the digestive cavities directly into the tissues. The acalephæ, which belong to this class, and which have the form of fungi, present a remarkable arrangement. The digestive cavity in these presents a multitude of parts, forming a complicated network, and the products of digestion escape through the sides of these minute reticulated intestinal tubes, their dispersion through the system being thus facilitated.

Absorbing Apparatus of Digestive Canal.—The body, as we have seen, receives the matter necessary for its repair chiefly by the absorption of the intestinal canal. The structure and form of the coats of the stomach and the smaller intestine are eminently adapted to promote this purpose. The innumerable glands or equivalent organs which are spread over their internal surface, penetrating their structure, and communicating with the veins and lymphatics, have been already explained. Their form is not less adapted to promote this absorption. The internal surface of the stomach of an adult person measures about 100 square inches; and, taking the average diameter of the small intestine at an inch and a quarter, and its length at twenty feet, the magnitude of its internal surface will be, in round numbers, 1000 square inches, or something more than six square feet. This vast surface, combined with its peculiar structure, will easily explain the celerity with which liquid matter flowing from the stomach through the intestine is transported through the circulation.—*Lardner.*

THE ABSORBING VESSELS, considered as a system or whole, are divisible into two sets: 1, those which return the chyle from the alimentary canal; and 2, those which take up the lymph or residue of nutrition from all the other parts of the body: both are connected in their course with ganglia or glands. The chyle vessels, by their union, form a large trunk (thoracic duct), which is a common reservoir for receiving their contents, as well as those of the lymphatics, which come from both the lower extremities,—from the cavity of the abdomen and its viscera, except the right lobe of the liver,—from the walls of the abdomen at both sides, and from the surface of the left side of the thorax,—from the left lung, the left side of the heart, and left side of the diaphragm,—from the left upper extremity, and from the corresponding side of the head and neck. But the lymphatic vessels, which arise from the right upper extremity, the right side of the head and neck, from the right lung, and from the corresponding half of the liver and diaphragm, pour their contents, by a short trunk, into the conflux of the right subclavian and internal jugular veins. This vessel may be called the right lymphatic duct; it is commonly named the right thoracic duct, though no part of it lies within that cavity. The duct of the left side is not entirely thoracic; for its commencement is in the abdomen, and its termination in the neck.

Dr. Smith on the Secretory Organs.—In the construction of the secreting apparatus, membrane, then, may be said to be disposed into four elementary forms, constituting cryptæ or vesicles, follicles, cæca, and tubuli. Membrane, disposed into these elementary forms, constitutes the simple bodies by the accumulation and the varied arrangement of which the compound organs are composed. There is no other known element which enters into the composition of the most complex secreting organ.



Branched cæca, showing—1, the cæca, terminating in, 2, excretory ducts which unite to form, 3, a common trunk.

The basis of the secreting canals consists, then, of membrane disposed in one or other of the elementary forms. These secreting canals constitute a peculiar system of organs wholly different from all the other organs of the body. The form of these organs, their structure, and their relation to the blood-vessels and nerves, have formed subjects of laborious investigation and of keen controversy during several centuries. The honour of discovering the exact truth on these points is due to very recent researches. Malpighi, an Italian, who flourished at

Bologna in the middle of the seventeenth century, was the first to establish a special inquiry into the intimate structure of the secreting apparatus. After many years of laborious examination, he arrived at the conclusion that a minute sac or follicle is invariably interposed between the termination of the capillary artery and the commencement of the excretory duct. According to him, the capillary artery conveys the blood to the follicle, separates from the blood the substance secreted; and the excretory duct arising from one extremity of the follicle conveys the secreted fluid, when duly prepared, to its destined situation. By injection, by dissection, by the microscope, by experiment on living animals, and by the phenomena of disease, he conceived that he had demonstrated that this is the true structure of the secreting apparatus in its most complex form. This view was generally acquiesced in by his contemporaries and by succeeding anatomists and physiologists; and in the time when Ruysh wrote was the received opinion.

Since every secreting organ is copiously supplied with blood, it follows that a great part of the blood of the body is always circulating in secreting organs; and, indeed, it is to afford materials for the action of these organs that the blood itself is formed. How do these organs act upon the blood? All that is known of the course of that portion of the blood which flows through an organ of secretion is, that it passes into arteries of extreme minuteness, which are spread out upon the external walls of the elementary secreting bodies, and which, as far as they can be traced, pass into capillary veins,—nowhere terminating by open mouths,—nowhere presenting visible outlets or pores; their contents probably transuding through their thin and tender coats by the process of endosmose. As it is flowing through these capillary arteries, the blood undergoes the transformations effected by secretion, forming,—1. The fluids, which are added to the aliment, and which accomplish its solution, and change it into chyme. 2. The fluids, which are added to the chyme to convert it into chyle, and both to chyle and lymph, to assist in their assimilation. 3. The fluids which, poured into the cavities, facilitate automatic or voluntary movements. 4. The fluids which serve as the media to the organs of the senses, by which external objects are conveyed to the sentient extremities of the nerves for their excitement. 5. The fluids which, deposited at different points of the cellular tissue, when more aliment is received than is needed, serve as reservoirs of nutriment to be absorbed when more aliment is required than can be afforded by the digestive organs. 6. The fluids which are subsequently to be converted into solids. 7. The fluids which are eliminated from the common mass, whether of fluids or solids, to be carried out of the system as excrementitious substances. 8. In addition to all these substances, which are indispensable to the preservation of the individual, those which are necessary to the perpetuation of the species.

In order to form any conception of the mode in which the secreting organs act upon the blood, so as to elaborate from it such diversified substances, it is necessary to consider the chemical composition of the different products of secretion, and the degrees in which they really differ from each other, and form the common mass of blood out of which they are eliminated. By chemical analysis, it is established that all the substances which are formed from the blood by the process of secretion are either water, albumen, mucus, jelly, fibrin, oil, resin, or salts; and, consequently, that all the secretions are either aqueous, albuminous, mucous, gelatinous, fibrinous, resinous, oleaginous, or saline.

1. Aqueous Secretions.—From the entire surface of the skin, and also from that of the lungs, there is constantly poured a quantity of water, derived from the blood, mixed with some animal matters, which, however, are so minute in quantity, that they do not communicate to the aqueous fluid any specific character.

2. Albuminous Secretions. —All the close cavities, as the thorax, the abdomen, the pericardium, the ventricles of the brain, and even the interstices

of the cellular tissue, are constantly moistened by a fluid which is termed serous because it is derived from the serum of the blood. This serous fluid consists of albumen in a fluid form, and it differs from the serum of the blood chiefly in containing in equal volumes a smaller proportion of albumen. Membranes of all kinds consist essentially of coagulated albumen: and the albumen, as constituting these tissues, differs from albumen as existing in the serum of the blood only in being unmixed with extraneous matter, and in being in a solid form.

3. Mucous Secretions.—As all the close cavities, or those which are protected from the external air, are moistened with a serous fluid, so all the surfaces which are exposed to the external air, as the mouth, the nostrils, the air-passages, and the whole extent of the alimentary canal, are moistened with a mucous fluid. Mucus does not exist already formed in the blood: it is always the product of a gland. Some of the mucous glands are among the most elaborate of the body; still the main action of the gland seems to be to coagulate the albumen of the blood; for the basis of mucus is coagulated albumen. The fluid that lubricates the mucous surfaces in their whole extent, the saliva, the gastric juice, the tears, the essential part of the fluid formed in the testes and in the ovaria, are mucous secretions. Hence the most complex and elaborate functions of the body, respiration, digestion, reproduction, are intimately connected with the mucous secretions: nevertheless, as far as regards their chemical nature, the mucous differ but slightly from the albuminous secretions; and it is probable that a slight change in the secreting organ is sufficient to convert the one into the other. By the irritation of mercury on the salivary glands, the saliva, properly of a mucous, is sometimes converted into a substance of an albuminous nature; and irritation in some of the serous membranes occasionally causes them to secrete a mucous fluid.

4. Gelatinous Secretions.—The proximate principle termed jelly abounds plentifully in several of the solids of the body, and more especially in the skin; but jelly does not exist already formed in the blood. Yet it is not the product of a gland, neither is there any known organ by which it is formed. Out of the body albumen is capable of being converted in jelly by digestion in dilute nitric acid: this conversion is probably effected by the addition of a portion of oxygen to the albumen. Albumen contains more carbon and less oxygen than jelly; the proportions of hydrogen and nitrogen in both being nearly the same. According to MM. Gay Lussac and Thénard, the elements of albumen and jelly are

	Carbon.	Oxygen.	Hydrogen.	Nitrogen.
Albumen . .	52.883	23.872	7.54	15.765
Jelly	47.881	27.207	7.914	16.988

The conversion of albumen into jelly is incessantly going on in the system; and the process accomplishes most extended and important uses. In the lungs at the moment of inspiration, oxygen enters into the blood in a state of loose combination; but in the system, at every point where the conversion of albumen into jelly takes place, oxygen probably enters into a state of chemical combination with albumen; and the new proximate principle, jelly, is the result. The agent by which this conversion is effected appears to be the capillary artery; the primary object of the action is the production of a material necessary for the formation of the tissues of which jelly constitutes the basis, as the skin; but a secondary and most important object is the production of animal heat; the carbon that furnishes one material of the fire being given off by the albumen at the moment of its transition into jelly; and the oxygen that furnishes the other material of the fire being afforded to the blood at the moment of inspiration. This view affords a beautiful exposition of the reason why jelly forms so large a constituent of the skin in all animals. The great combustion of oxygen and carbon, the main fire that supports the temperature of the body, is placed where it is most needed, at the external surface.

5. Fibrinous Secretions.—The pure muscular fibre, or the basis of the

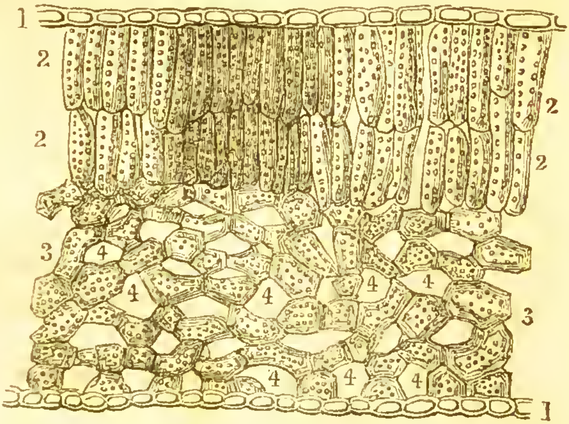
flesh, is identical with the fibrin of the blood. It contains a larger proportion of nitrogen, the peculiar animal principle, and is consequently more highly animalized, than the preceding substancês. It appears to be simply discharged from the circulating blood by the capillary arteries, and deposited in its appropriate situation; no material change in its constitution being, it would seem, necessary to fit it for its office.

A third most important agent in the process of secretion is some influence derived from the nervous system.

1. It is proved, by direct experiment, that the destruction of the nervous apparatus, or of any considerable portion of it, stops the process of secretion. By experiments performed by Mr. Brodie, it is ascertained that the secretion of the urine is suspended by the removal or destruction of the brain, though the circulation be maintained in its full vigour by artificial respiration.

2. The section, and still more the removal, of a portion of the sentient nerves of the stomach (the par vagum, or eighth pair), according to some experimentalists, deranges and impedes—according to others, totally arrests—the process of digestion.

The following vertical section of a leaf, from Dr. Smith, shows how the principles of cellular structure and absorbents are carried out in the vegetable creation, on the same principle as in animated beings.

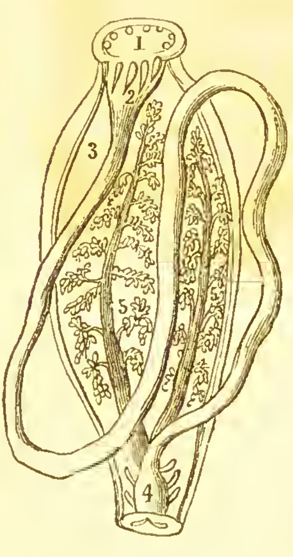


Vertical section of the leaf as it appears when seen highly magnified under the microscope. 1. Cells of the cuticle filled with air. 2. Double series of cylindrical cells occupying the upper surface of the leaf, filled with organic particles. 3. Irregular cells forming a reticulated texture occupying the under surface of the leaf. 4. Interspaces between the cells, termed the intercellular passages or air-chambers.

"Whatever the medium breathed, the organic tissue which constitutes the essential part of the immediate organ of respiration is the skin. The primary tissue of which the skin is composed is the cellular, which, organised into mucous membrane, forms the essential constituent of the skin. In all animals, from the monad to man, *the skin covers both the external and the internal surfaces of the body. When forming the external envelope, this organ commonly retains the name of skin; when forming the internal lining, it is generally called mucous membrane;* and in all animals, either in the form of an external envelope or an internal lining, or by both in conjunction, or by some localization and modification of both, the skin constitutes the immediate organ of respiration. In different classes of animals it is variously arranged, assumes various forms, and is placed in various situations, according to the medium breathed, and the facility of bringing its entire surface into contact with the surrounding element; but in all, the organ and its office are the same: it is the modification only—that modification being invariably and strictly adaptation—which constitutes the whole diversity of the immediate organ of respiration."

The following observations and cut are from Dr. Smith, showing a specimen of the lowest scale of animated beings:—

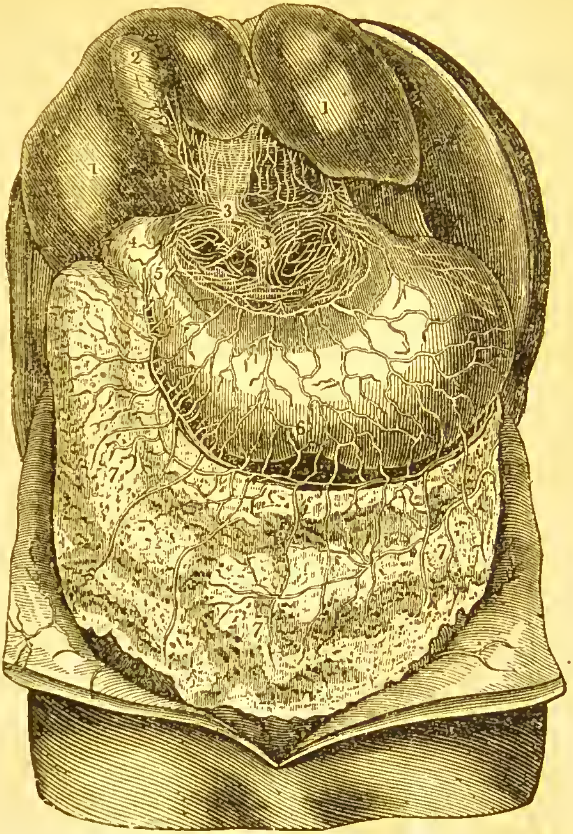
"At the commencement of the animal scale, in the countless tribes of the polygastrica, respiration is effected through the delicate membrane which envelops the soft substance of which their body is composed. The air contained in the water in which they live, penetrating the porous external envelope, permeates every part of their body; aërates their nutritive juices; and converts them immediately into the very substance of their body. They are not yet covered with solid shells nor with dense impervious scales, nor with any hard material which would exclude the general respiratory influence of water, or render necessary any special expedient to bring their respiratory surface into contact with the element. But in some tribes even of these simple creatures there is visible by the microscope an afflux of their nutritive juices to the delicate pellicle that envelops them, in the form of a vascular network, in which there appears to be a motion of fluids, probably the nutritive juices flowing in the only position of the body in which they could come into direct contact with the surrounding element. In some more highly advanced tribes, as in wheel-animalcules, there is an obvious circulating system in vessels near the surface of the skin. In other tribes, the internal surface constituting the alimentary canal is of great extent and width, and forms numerous cavities which are often distended with water. In this manner a portion of the internal as well as the external surface is made contributary to the function of respiration, and this extended respiration is conducive to their great and continued activity, to their rapid development. and to the extraordinary fertility of their races.



Holothuria. 1. Mouth. 2. Salivary sacs. 3. Intestine. 4 Cloaca. 5. Ramified tubes, conveying water for respiration into the interior of the body."

Ganglionic Nervous System, or Nerves of Nutrition.—I only give one engraving of this system; they, however, are easily comprehended from the other engravings of nerves, and only differ in appearance by being mostly ganglionic or knotted in groups. They have no common centre, but spread over the entire body wherever nutrition is required, and that of course is in every large or minute part of the frame. Lardner, in his Animal Physics, has some beautiful cuts of this system of nerves, one large cut showing the ganglionic nerves of the whole body. The reader is referred to my notice of this fourth order of nerves, at pages 24, 25.

"The organic nerves are spread out in countless numbers upon the great trunks of the arteries, so as to give them a complete envelope; these nerves, never quitting the arteries, accompany them in all their ramifications, and the fibril of the nerve is ultimately lost upon the capillary termination of the artery. It is by these organic nerves that the stomach is enabled to perform its organic functions, which, for the reason assigned, is placed beyond volition, and is without consciousness. By the nerves derived from the sentient system, which mingle with the organic, the function of nutrition is brought into relation with the percipient mind, and is made part of our sentient nature. By the commixture of these two sets of nerves, derived from these two portions of the nervous system, though we have no *direct* consciousness of the digestive process—consciousness ceasing precisely at the point where the agency of volition stops—yet pleasurable sensation results from the due performance of the function. Hence the feeling of buoyancy, exhilaration, and vigour, the pleasurable consciousness to which we give the name of health, when the action of the stomach is sound: hence the depression, listlessness, and debility, the painful consciousness which we call disease, when the action of the stomach is unsound: hence, too, the influence of the mental state over the organic process; the rapidity



1. Under surface of the liver, turned up, to bring into view the anterior surface of the stomach. 2. Gall-bladder. 3. Organic nerves enveloping the trunks of the blood-vessels. 4. Pyloric extremity of the stomach and commencement of the duodenum. 5. Contracted portion of the pylorus. 6. Situation of the hour-glass contraction of the stomach, here imperfectly represented. 7. Omentum.

VIEW OF THE ORGANIC NERVES OF THE STOMACH.—*Dr. Smith.*

and perfection with which the stomach works when the mind is happy—when the repast is but the occasion and accompaniment of the feast of reason and the flow of soul; the slowness and imperfection with which the stomach works when the mind is harassed with care, struggling against adverse events, or is in sorrow and without hope; when the friend that sat by our side, and with whom we were wont to take sweet counsel, is gone, and therefore gone that which made it life to live.

"Renovation is the primary and essential office of the stomach, and its organic nerves enable it to supply the ever-recurring wants of the system. Gratification of appetite is a secondary and subordinate office of the stomach, and its sentient nerves enable it to produce the state of pleasurable consciousness when its organic function is duly performed. By the double office thus assigned it, the stomach is rendered what Mr. Hunter named it, the centre of sympathies."—*Dr. Smith.*

"THE MUSCLES OF THE BODY are the agents by which its different efforts and movements are performed. In ordinary language they are known by the name of flesh. Flesh is muscle. A muscle is a compound structure, made up of cellular tissue for its basis, which encloses it in its areole fibrine as the essential constituent. Tendinous fibres are superadded in most muscles, particularly at their extremities, forming the means of attachment to the perisotum and the bones. When we look at a muscle dissected, it evidently appears made up of fibres arranged in a defined direction; several of these are observed to be aggregated into bundles, each of which is detached from the rest by a thin lamilla of delicate cellular tissue. Each bundle again admits of being separated into fibre, and these into fabrilla; and the separation may be continued until we at length arrive at some so minute as to be incapable of further division. The muscles thus formed of bundles or groups of fibres, either singly or in various combinations, draw upon the different parts of the skeleton to which they are attached, and put them in motion or steady and fix them as circumstanees require. The skeleton of man contains more than two hundred separate pieces, and the muscles about two hundred and twenty pairs."—*Quain and Wilson.*

MUSCLES. (*Lardner.*)—The apparatus by which the bones are held together being described, it remains to show how those movements of which they are severally susceptible are imparted to them. The bones themselves are merely passive instruments: and the ligaments by which they are connected, the forms given to them at the joints, the cartilaginous coatings, and synovial apparatus, are provided respectively for facilitating, but not at all for originating, their motions. The apparatus by which the motions are immediately produced are fibrous bands and masses of flesh called *muscles,* which constitute that part of the animal body which when used for human food is called *meat.* With the visible fibrous structure of the muscular tissue every one must be familiar. *Muscles* consist of fibres ranged generally side by side, parallel to each other. They are extended between the bones, to one or both of which they are intended to impart motion; or, as in the face and eye, one end only is attached to bone. The muscle itself, however, is not immediately connected with the bone. At its extremities it gradually takes the form of tendinous fibres, totally different in their physical character from the fibres of the muscle itself.

"TENDONS.—These tendinous fibres are sometimes collected into a single cord called a *tendon,* which is inserted in the bone so firmly that before it can be detached from it the bone itself would be broken."—*Lardner.*

MUSCULAR FORCE.—Anatomists and physiologists have not determined with certainty the mechanical change by which muscular contraction is produced. When the muscular tissue is submitted to a microscope of moderate magnifying power, one, for example, of five or six times the linear dimensions, each fibre is found to consist of a number of fasciculi, each similar to the original fibre.

The contractile power of the muscles which have been described can, in general, only be called into action by the dictate of the will. Hence they are called *voluntary muscles,* and examples of them are presented by the muscles which impart motion to the principal members of the body. Thus, the muscles by which the legs or arms are moved can only be brought into play by the

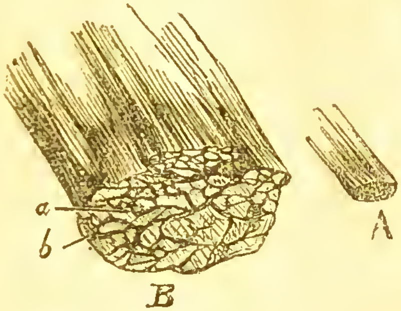


Fig. 1.

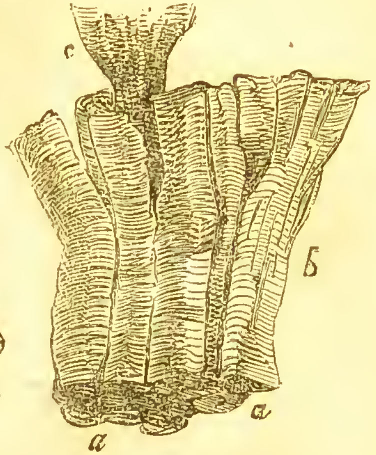
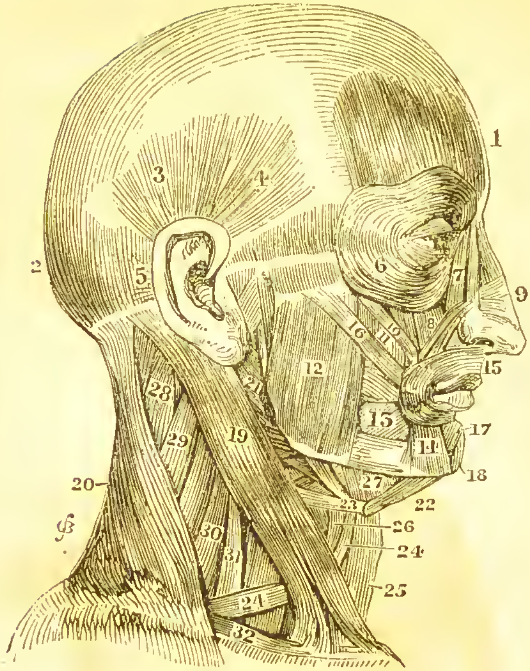


Fig. 2.

In Fig. 1, A represents a small portion of a muscle in its natural size, cut transversely at its extremity. B represents the same object magnified five times in its linear dimensions, the component fibres of which it consists being rendered apparent. Fig. 2 represents a part of a muscle submitted to a much higher magnifying power, in which the structure of each separate fibre is shown as marked by a series of transverse striæ. The terminal section is shown at *a a*, the transverse striæ at *b b*, and a single fibre split into its component fibrillæ at *c*.

operation of the will. There are some muscles which are, to a certain extent, subject to the will, but also act independently of it. The muscles which move the chest in respiration present examples of this class. The will has the power of accelerating, retarding, or even of temporarily suspending the act of respiration; but when the will exercises no influence on the organs of respiration, as when the mind is engaged in other objects, or in sleep, the process of respiration goes on with perfect regularity.

INVOLUNTARY MUSCLES.—There are some muscles over which the will has no control whatever, and which are hence called *involuntary muscles*. The heart, and the muscles entering into the structure of the stomach and intestines, are examples of this class. Except the heart, they do not present striæ. The involuntary muscles, and those of a mixed character, like the voluntary muscles, absorb a certain amount of animal energy by their contraction, and consequently such contraction could not be maintained continuously without exhausting the animal power. We find, accordingly, that nature has so regulated the organization, that all muscular action which is independent of the will is intermitting, so that the intervals of muscular repose or relaxation are, on the whole, equal to those of muscular tension. The heart of an animal beats incessantly, sleeping or waking, during the continuance of its vitality; and this action may continue in man even for a century. The muscles, however, which produce it are never in a state of tension for more than a moment, so that they are enabled to recover their energy in the alternate intervals of their relaxation.



MUSCLES OF THE FACE.—*Lardner.*

The various bands or muscles are here well deliniated; notice the muscle round the lips to move the lips at pleasure. These muscles, it must be borne in mind, are acted upon by the will from the nervous centres in the base of the brain, through the telegraph wires, or nerves of motion and sensation in the spinal column.

A stratum consisting of five or six muscles (1, 2, 3, 4, 5), of considerable surface, but little thickness, covers the entire surface of the head from the brows to the back of the neck, called by anatomists, according to their local position, *occipital*, *frontal*, and *auricular*, the action of which is to move the scalp, with the hair, the ears, the integuments of the forehead and temples, and the brows. By their contraction, the eyebrows are drawn upwards, the skin of the forehead thrown into transverse folds and wrinkles, the scalp and hair moved backwards and forwards, and the features thereby made to express various and often opposite emotions, according to the greater or less extent to which the action of these muscles is called into play. Joy, surprise, astonishment, or ecstacy, are attended with, or expressed by, a certain elevation of the brows. The contractions and wrinkling of the forehead, and the approach of the brows to each other, involve the more violent class of emotions, such as anger, hatred, indignation, and menace.

The eyes and eyelids, with their appendages, are moved by not less than twelve pair of muscles, of which, however, one only, called the orbicular (6), is superficially visible. These govern the entire play of the eyeball and the eyelids, the flow and suppression of tears, and, in part, the gestures of the brow. They combine, therefore, with the muscles above mentioned, in the expression of anger and menace, and also assume the gestures which express the very different and opposite sentiments of tenderness, love, grief, mental pleasure, and anguish.

The nose and nostrils are moved by six pair of muscles, three only of which (7, 8, 9) are superficially apparent; and fifteen pairs are appropriated to the various motions of the lips, the chin, the cheeks, and the lower jaw.

"It will be observed, that one of the most voluminous muscles, called the *masseters* (12), is appropriated—aided by another, not apparent superficially—to the motion of the lower jaw; that motion being subject, in the act of mastication, to a greater amount of resistance than any other facial gesture.

"The motions of the neck, and consequently of the head, are subject to the action of about forty pairs of muscles, of which a small number only are superficially visible. And some of those which appear in the figure do not belong exclusively to the neck, but are shared between it and the trunk.

"Eight pair of muscles are more or less called into play to make the head incline forwards, among which is the long muscle (19), extending from the ear to the point where the clavicle (32) is articulated with the sternum, or breastbone; another, called the mylo-hyoidean, extending downwards from the jaw; and another, the digastric (21, 22), extending from the inner extremity of the jaw on one side, and its outer extremity on the other, to the hyoid bone (23).

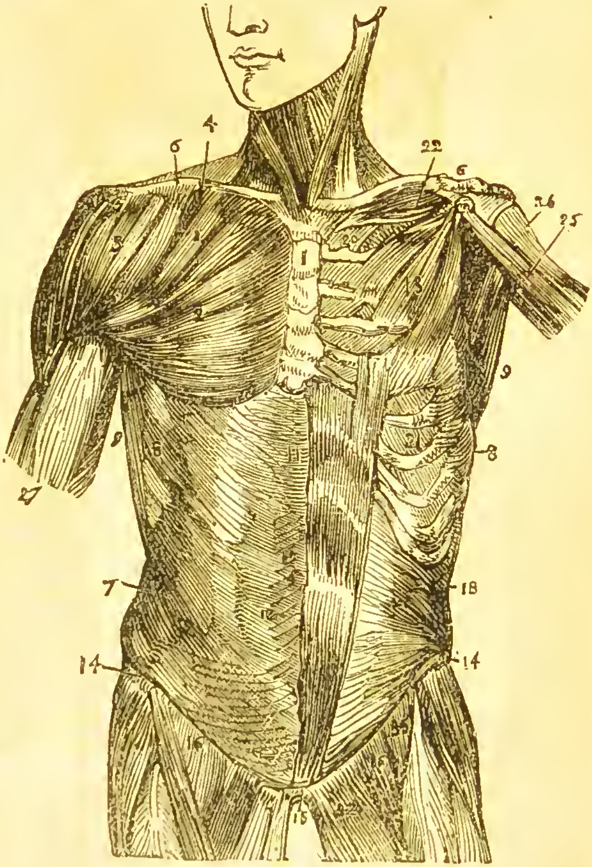


Fig. 56.

The anterior muscles shown in Fig. 56, though located upon the trunk, act, for the most part, in moving the arms and shoulders. The superficial ones on the left side of Fig. 56 are few in number, and great in extent. The great pectoral muscle (56, ^{2}, ^{3}) has its origin along the edge of the breast-bone (56, ^{1}), and along something less than half the length of the clavicle (56, ^{6}) and from these lines the fibres converge to a point a little below the head of the humerus, and on the inside part of that bone. The clavicular fibres of this muscle, therefore, draw the arm obliquely upwards and inwards, having a tendency to secure the head of the bone in its socket; while the sternal fibres, being nearly horizontal, draw it inwards towards the side. The lesser pectoral muscle, which is covered by the greater, is shown at 56, ^{13}. It is attached at its origin to three of the ribs,—the third, fourth, and fifth, and at its insertion to a process (the coracoid) of the scapula.

The dentelated insertion of the great serrated muscle, already described, attached to the ribs, is shown at 56, ^{8}. The front part of the deltoid, already mentioned, is also shown at 56, ^{5}.

“Seven pair of muscles are employed, together or separately, in inclining the head backwards, among which there appear in the figure the trapezius (20) and the splenius (28). Seven pair are engaged in inclining the head sidewards, several of which are also those—such as 19 and 20—which incline the head backwards.”

(*Lardner.*)—The principal anterior muscles of the trunk and shoulders are shown in Fig. 56, those on the left being superficial, and those on the right the deeper layer covered by the former. In proportion to the surface over which they are spread, these muscles are much less numerous than those of the back, a circumstance which naturally arises from the fact already indicated, that the weight of the trunk, being chiefly in front of the spine, is altogether supported and, for the most part, moved by the posterior muscles.

In Fig. 54 the superficial muscles of the back, including the neck, shoulder, and haunch, are shown on the left side of the spine; and those of the second layer, disclosed by the removal of the former, on the right side.

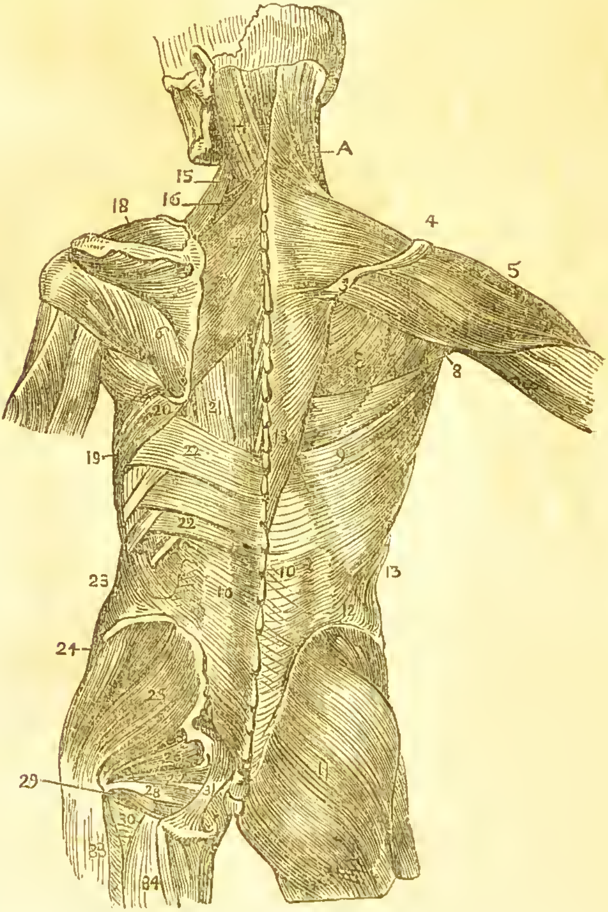
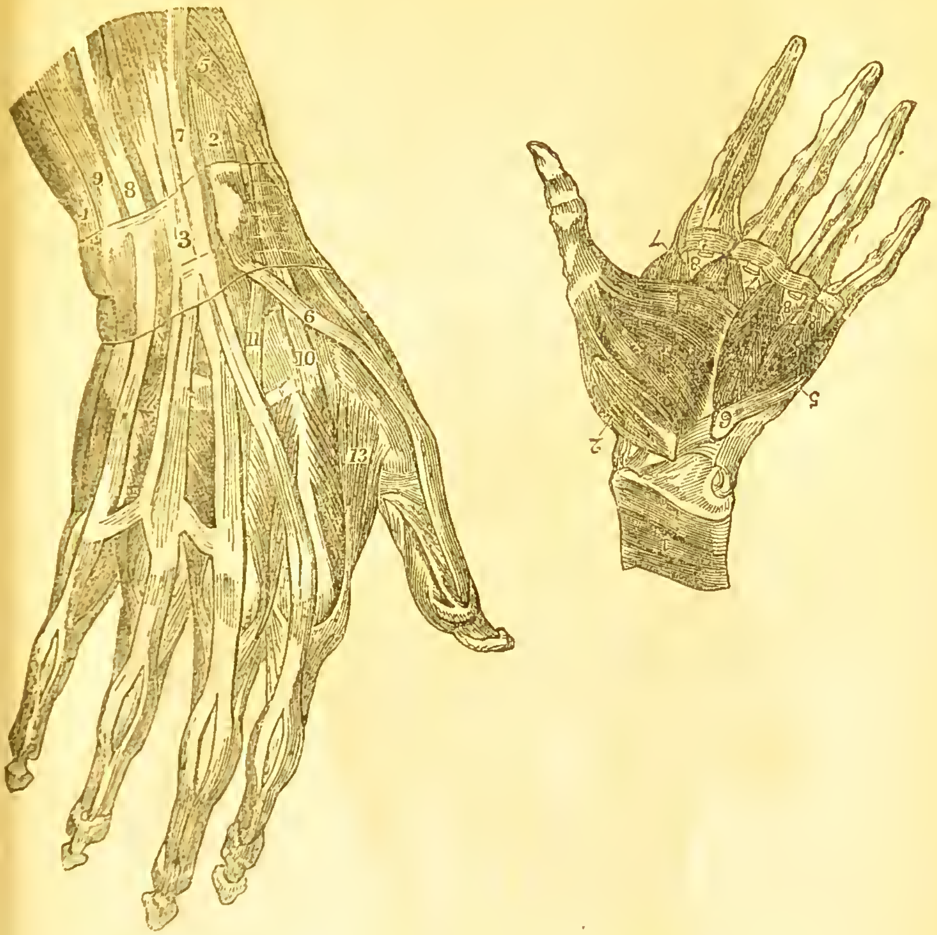
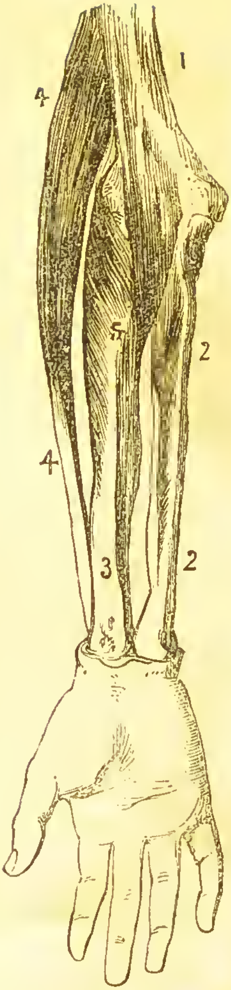


Fig. 54.—*Lardner.*



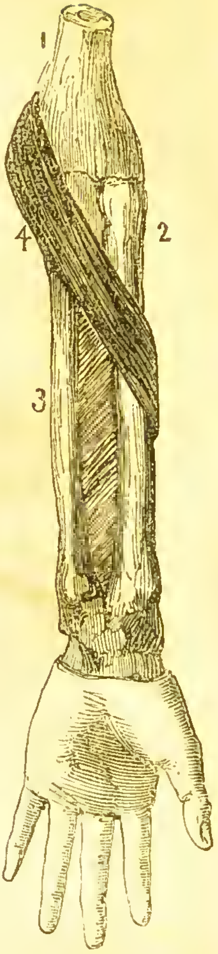
MUSCLES OF THE HAND, STRIPT OF THE SKIN.—*Quain and Wilson*

"The bracelet called the annular ligament, which retains the tendons upon the wrist, is only a part of a more extensive system of membranous binding, enveloping generally the muscles and their tendons. Wherever a considerable change of direction takes place in the latter, as in the instance of the elbow and wrist, this membrane sometimes assumes the form of a strap or band. The tendons of the brachial muscles, after passing within the annular ligament of the wrist, pass along the hand, and most of them along the fingers. They are confined on the hand by a membrane such as that just described, and on the fingers by ligaments, which retain them in their position in the same manner as that in which the annular ligament of the wrist acts. Thus we may conceive the tendons and muscles of the hand and fingers retained in their position by being enclosed in a membranous and ligamentous glove; and, in the same manner, those of the arm and humerus, by a membranous sleeve extending upwards from the superior edge of the annular ligament of the wrist."—*Lardner.*



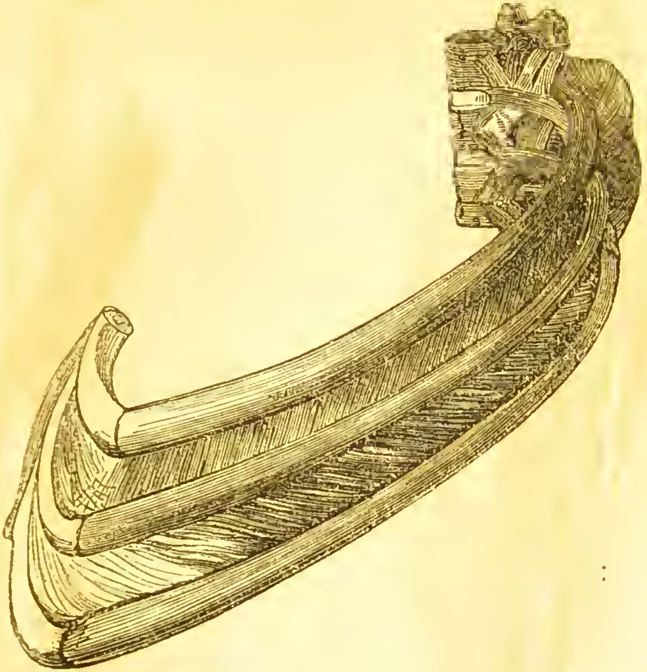
MUSCLES OF THE ARM.—*Lardner*

View of the supinators of the radius and hand. 1. The humerus. 2. The ulna. 3. The radius. 4. The muscle called the long supinator, passing to be inserted into the lower portion of the radius. 5. The muscle called the short supinator, surrounding the upper part of the radius.

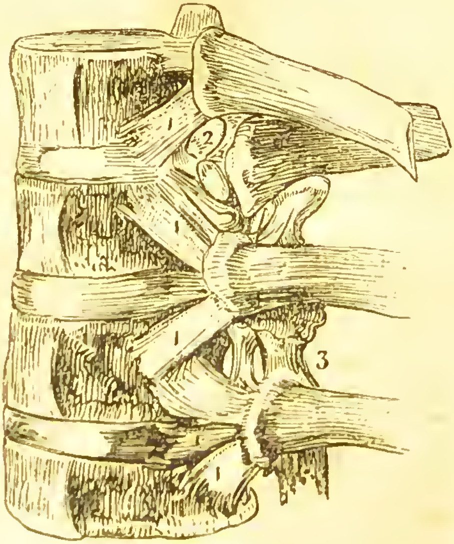


VIEW OF THE PRONATORS OF THE HAND.

1. Lower end of the humerus. 2. The radius. 3. The ulna. 4. The muscle called the round *pronator*, one of the powerful pronators ef the hand.



A view of the muscles called intercostals, filling up the spaces between the ribs.—*Dr. Smith.*



Ligaments connecting the ribs to the spinal column. 1, anterior ligaments; 2, inter-articular ligament; 3, ligaments of the necks of the ribs. —*Dr. Smith.*

(*Dr. Lardner.*) The muscles which surround the thigh bone, between the hip and the knee, are shown in Figs. 70 and 71; the former presenting a posterior and the latter an anterior view of the left thigh.

Of these muscles, 70^1, 70^2, 71^1, 71^2, 71^3, 71^{11}. 71^{12}, and 71^{13} originate in the pelvis, have their insertions in the thigh-bone, and are therefore motor muscles of the thigh. All the others, passing below the knee, are inserted in one or other of the bones of the leg, of which accordingly they are either flexors or extensors, according as they are inserted in the posterior or anterior part.

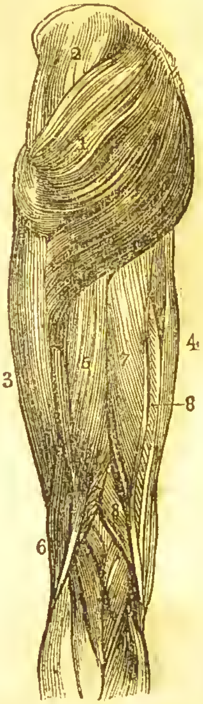


Fig. 70.

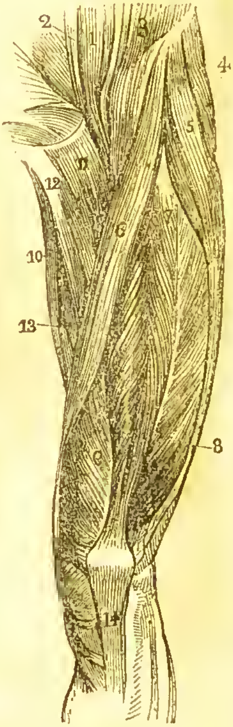


Fig. 71.

The muscles which surround the bones of the leg, like those which invest the fore-arm, throw out low tendons, which, passing down the instep and to the heel, are inserted in the bones of the foot and toes in the same manner as those of the fore-arm are inserted in the bones of the hand and fingers. And in the same manner as the bellies of the muscles of the arm form the fleshy mass at its upper part, tapering into mere tendons at the wrist, the bellies of the muscles of the leg form the fleshy part of the calf, tapering as they descend into tendons which surround the instep and heel.

The patella, or knee-pan, is a light but strong bone, of the figure of the heart as painted on playing cards, placed at the fore part of the joint of the knee, and attached by a strong ligament to the tibia, the motions of which it follows. It is lodged, when the knee is extended, in a cavity formed for it in the femur; when bent, in a cavity formed for it at the fore part of the knee.

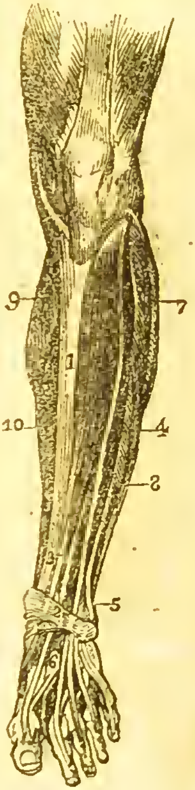


Fig. 72.

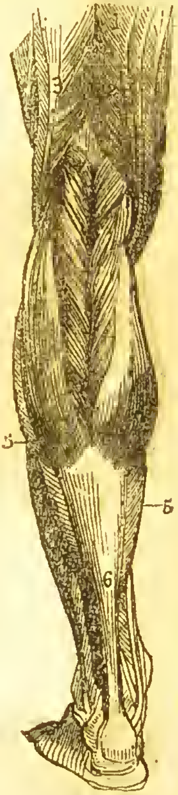
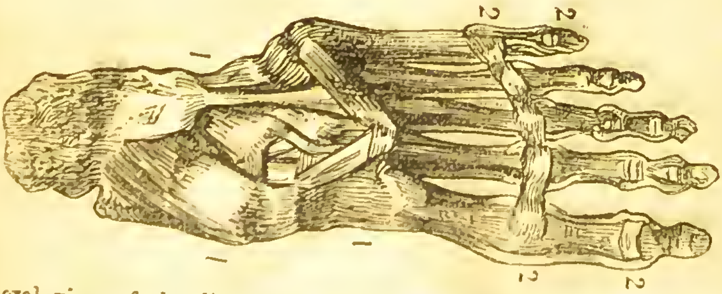
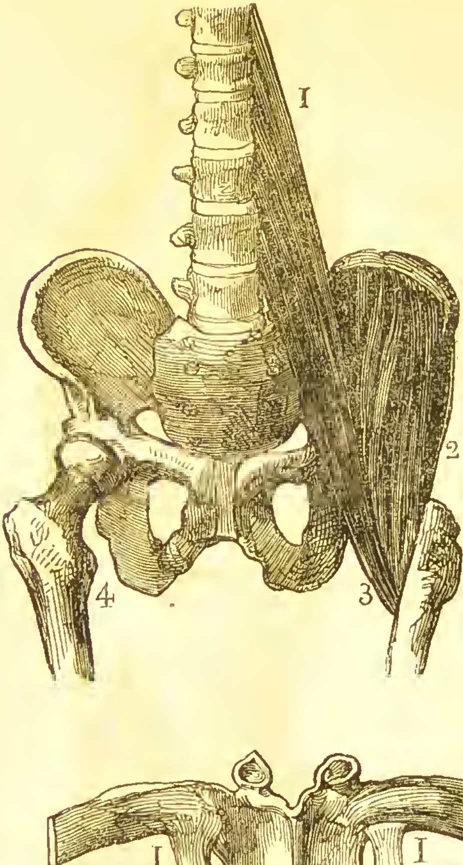


Fig. 73.

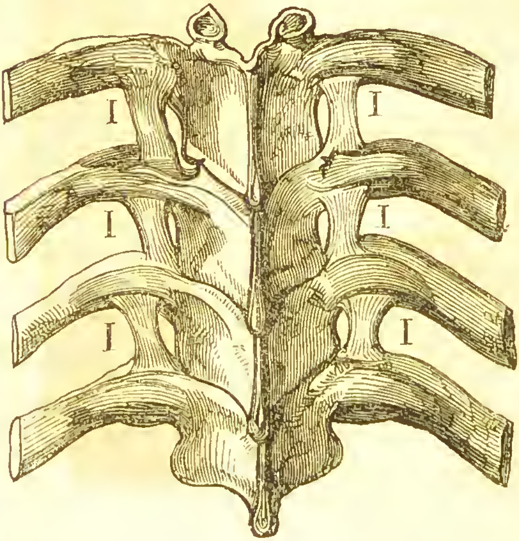
A front view of the superficial muscles of the left leg is given in Fig. 72, and a back view in Fig. 73



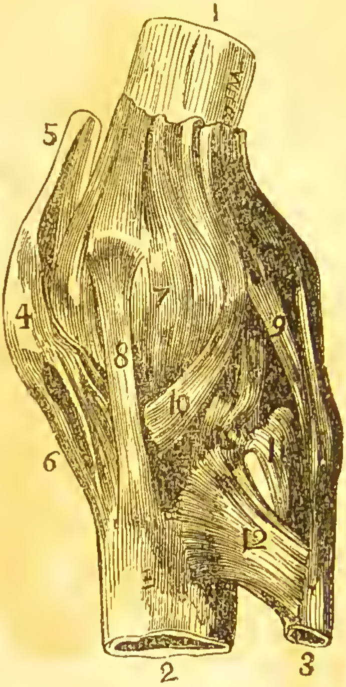
General view of the ligaments of the sole of the foot, 1, ligaments con-ecting the bones of the tarsus; 2, ligaments connecting the bones of the oes.



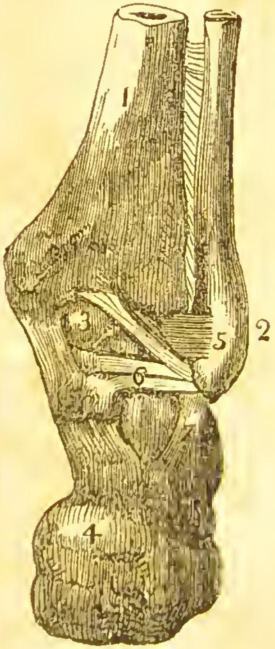
View of the muscles that bend the thigh. 1, the muscle called psoas; 2, the muscle called iliacus; 3, tendons of these muscles, going to be inserted into the trochanter minor of the femur.—*Dr. Smith.*



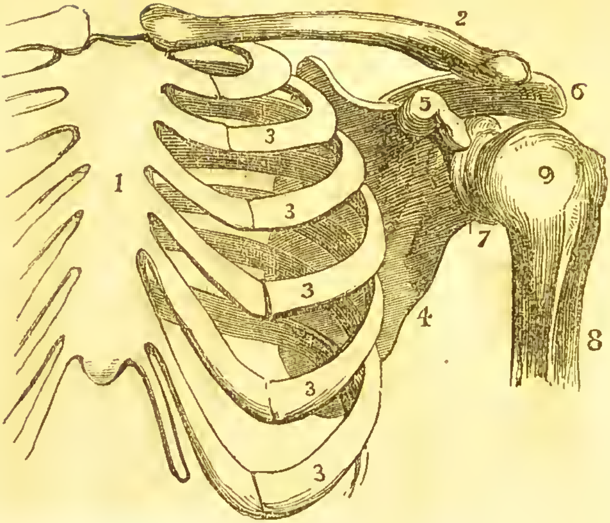
1, &c., Ligaments connecting the ribs to the vertebræ behind the spine.—*Dr Smith.*



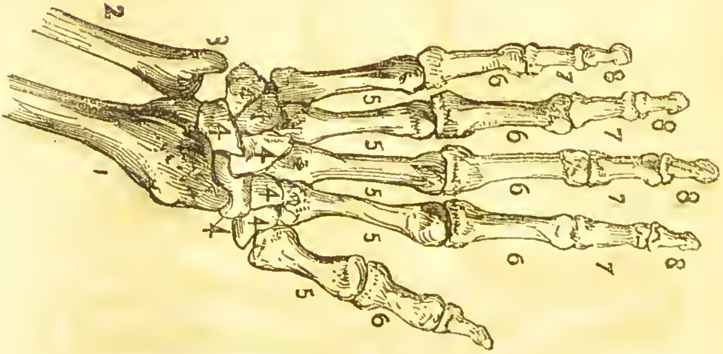
General view of the ligaments of the knee-joint. 1, lower end of the femur; 2, upper end of the tibia; 3, upper end of the fibula; 4, the patella; 5, united tendons of the extensor muscles; 6, ligaments of the patella; 7, the capular investment of the knee; 8, the internal lateral ligament; 9, the external lateral ligaments; 10, the posterior ligament; 11, the ligament connecting the tibia and fibula; 12, a portion of the inter-osseous ligament.



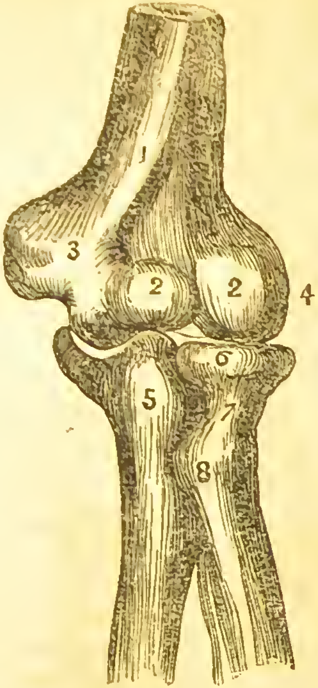
General view of the posterior ligaments of the ankle-joint. 1, Lower end of the tibia; 2, lower end of the fibula; 3, astragalus; 4, os calcis; 5, ligament between the tibia and fibula; 6, ligament passing from the fibula to the astragalus; 7, ligament passing from the fibula to the os calcis; 8, ligament passing from the tibia to the astragalus.



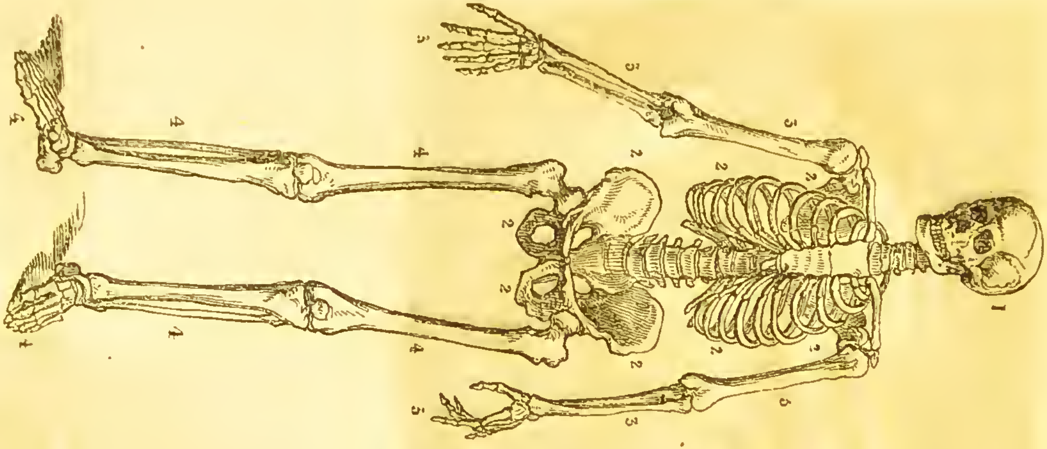
1, Sternum; 2, clavicle; 3, ribs; 4, anterior surface of scapula; 5, coracoid process of scapula; 6, acromion process of scapula; 7, margin of glenoid cavity of scapula; 8, body of the humerus or bone of the arm; 9, head of the humerus.—*Dr. Smith.*



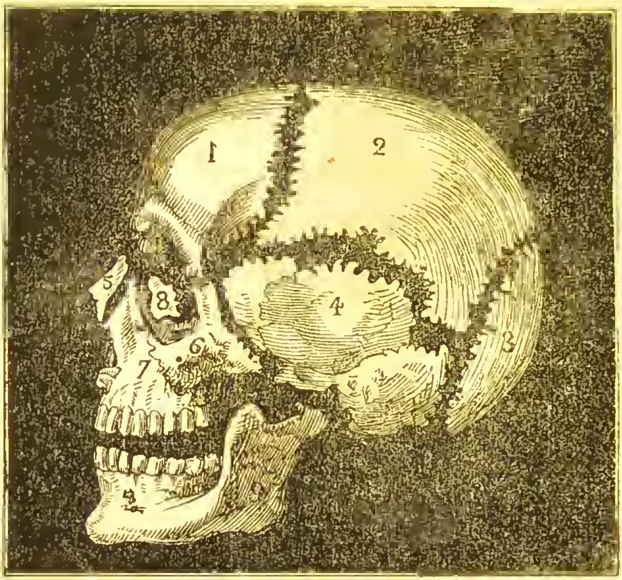
BONES OF THE HAND.—*Dr. Smith.*



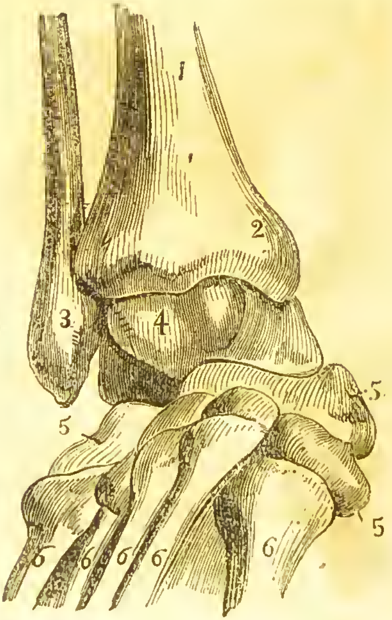
BONES OF THE ELBOW JOINTS AND ARM, FROM DR. SMITH.



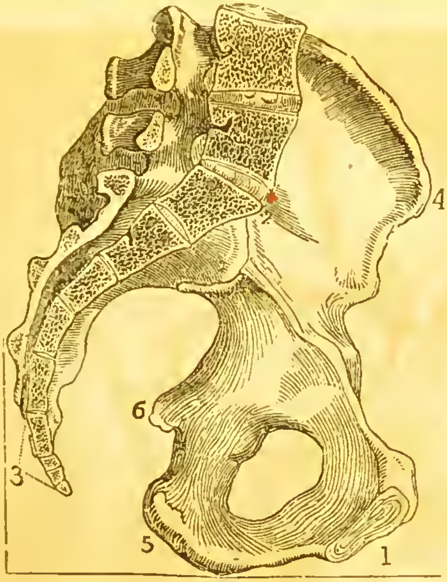
Front view of the skeleton. 1, the head; 2, the trunk; 3, the superior extremities; 4, the inferior extremities



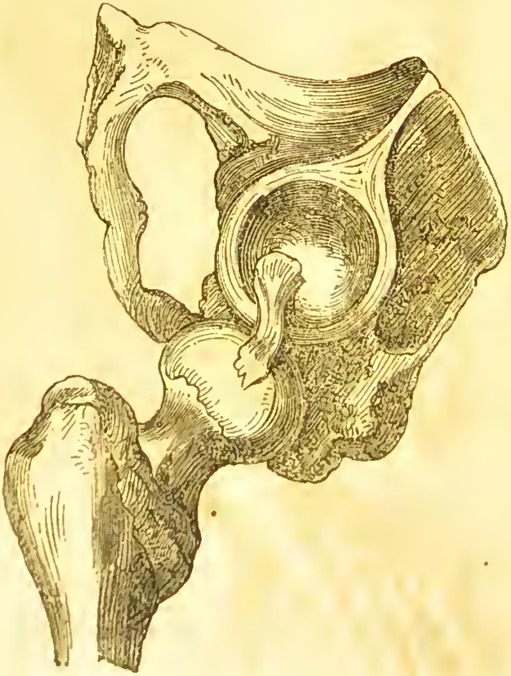
Bones of the skull separated; side view. 1, Frontal bone; 2, parietal bone; 3, occipital bone; 4, temporal bone; 5, nasal bone; 6, malar bone; 7, superior maxillary bone; 8, the unguis; 9, the inferior maxilary bone.



Anterior view of the bones forming the ankle-joint. 1, lower end of the tibia; 2, production of the tibia, forming the inner ankle; 3, lower end of the fibula, forming the outer ankle; 4, upper part of the astragalus: these three bones form the ankle-joint; 5, 5, 5, other bones of the tarsus; 6, 6, 6, 6, 6, metatarsal bones.—*Dr. Smith.*

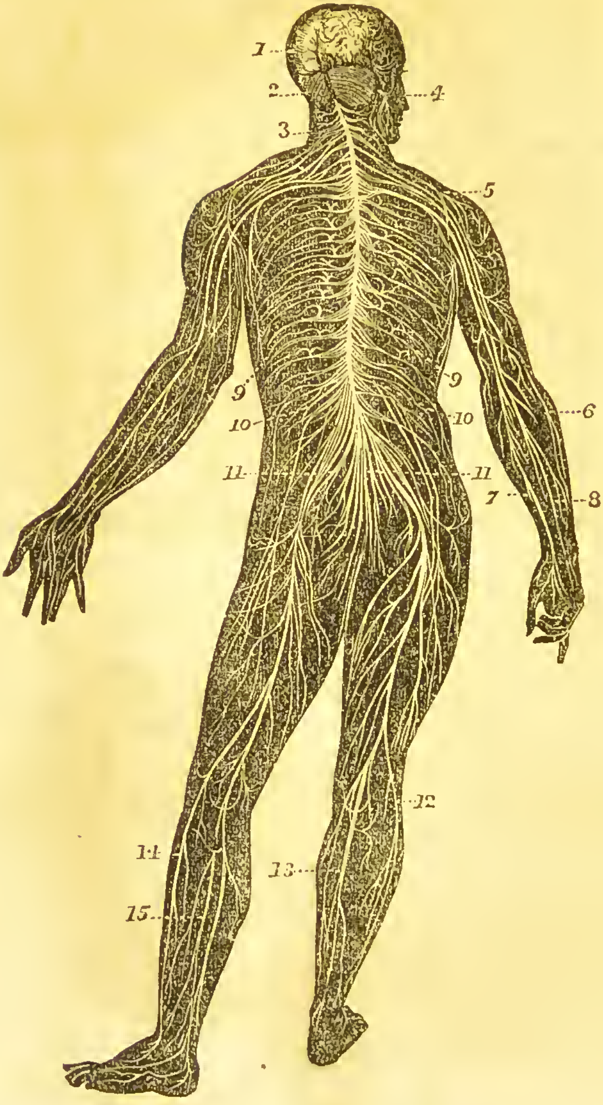


No. 3, termination of the spine; 1, 2, 4, 6, bones connected with the hip. (*Lardner.*)



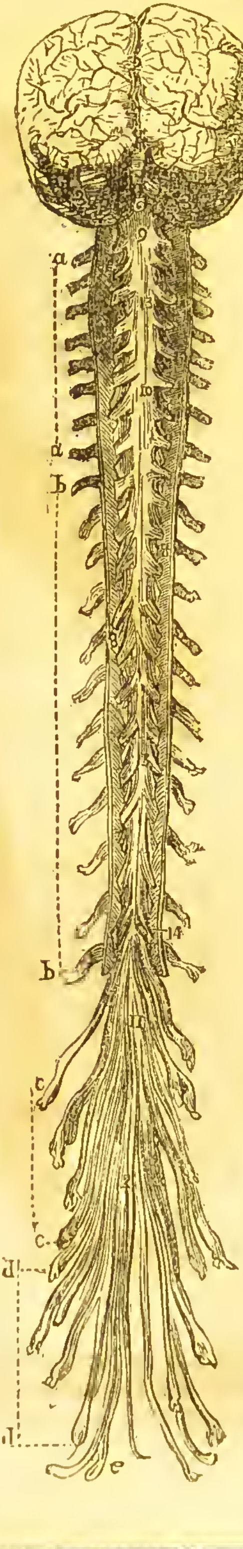
THE HIP-JOINT.

A view of the head of the femur drawn out of its socket, and suspended by the round ligament, to show more clearly the action of the ligament in retaining the head of the femur in its socket. Rheumatism sometimes attacks this ligament and the connecting muscles, and forces the head of the thigh-bone out of the socket.



1, cerebrum; 2, cerebellum; 3, spinal cord; 4, facial nerve; 5, brachial nerves; 6, median nerve; 7, ulnar nerve; 8, internal cutaneous nerve; 9, intercostal nerves; 10, lumbar nerves; 11, sciatic plexus; 12, external peroneal; 13, tibial nerves; 14, external peroneal nerve; 15, external saphena.

A theoretical illustration of the general form and disposition of the cerebro-spinal system of nerves.—*Lardner*



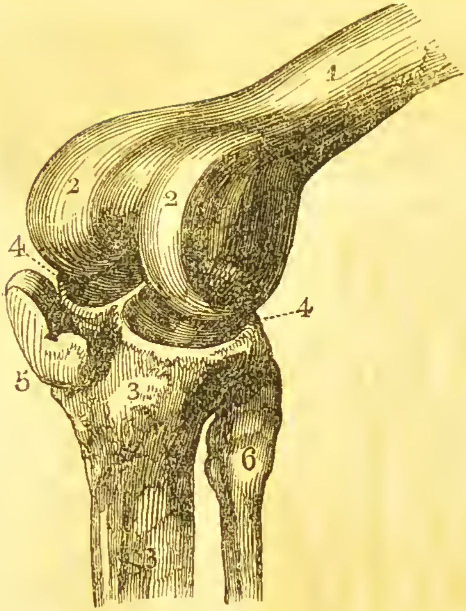
BRAIN AND SPINAL MARROW.

The dura mater removed from the brain, and spread open along the spinal cord, so as to display the pia mater, covered by the thin and transparent arachnoid membrane.—*Quain and Wilson.*

Nos. 1, 1, the convolutions of the two hemispheres of the cerebrum covered by their vascular membrane, the pia mater; 2, the median fissure between the hemispheres, which receives the falx major; 3, 3, the lateral lobes of the cerebellum, also invested with pia mater; 4, the superior vermiform process of the cerebellum; 5, 5, the fissure separating the posterior lobes of the cerebrum from the cerebellum, which lodges the tentorium cerebelli; 6, the depression between the two lobes of the cerebellum, lodging the falx minor; 7, 7, the dura mater of the spinal cord laid open: it is entirely removed below; 8, 8, the membrana dentata, or ligamentum denticulatum, connecting the sides of the spinal cord to the inner surface of the dura mater; 9, the superior swelling of the spinal cord; 10, the middle or brachial swelling; 11, the inferior or lumbar swelling; 12, the cauda equina; 13, the posterior longitudinal fissure; 14, 14, the posterior roots of the spinal nerves.

a, *a*, the eight cervical nerves; *b*, *b*, the twelve dorsal nerves; *c*, *c*, the five lumbar nerves; *d*, *d*, the five sacral nerves; *e*, the two coccygeal nerves.

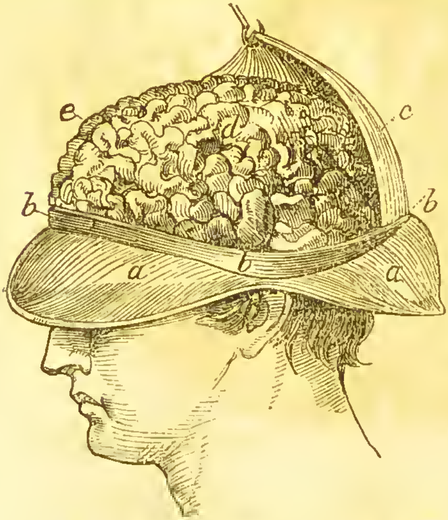
ARACHNOID.—The arachnoid (cobweb) membrane, so called from its resemblance to a spider's web in its texture, is the second coating. Part of it is in immediate contact with, and inseparable from, the dura mater, which has so far the character of a fibro-serous membrane. A space intervenes between the arachnoid and the pia meter, filled with a liquid called the *cerebro-spinal fluid.—Lardner.*



BONES OF THE KNEE-JOINT.

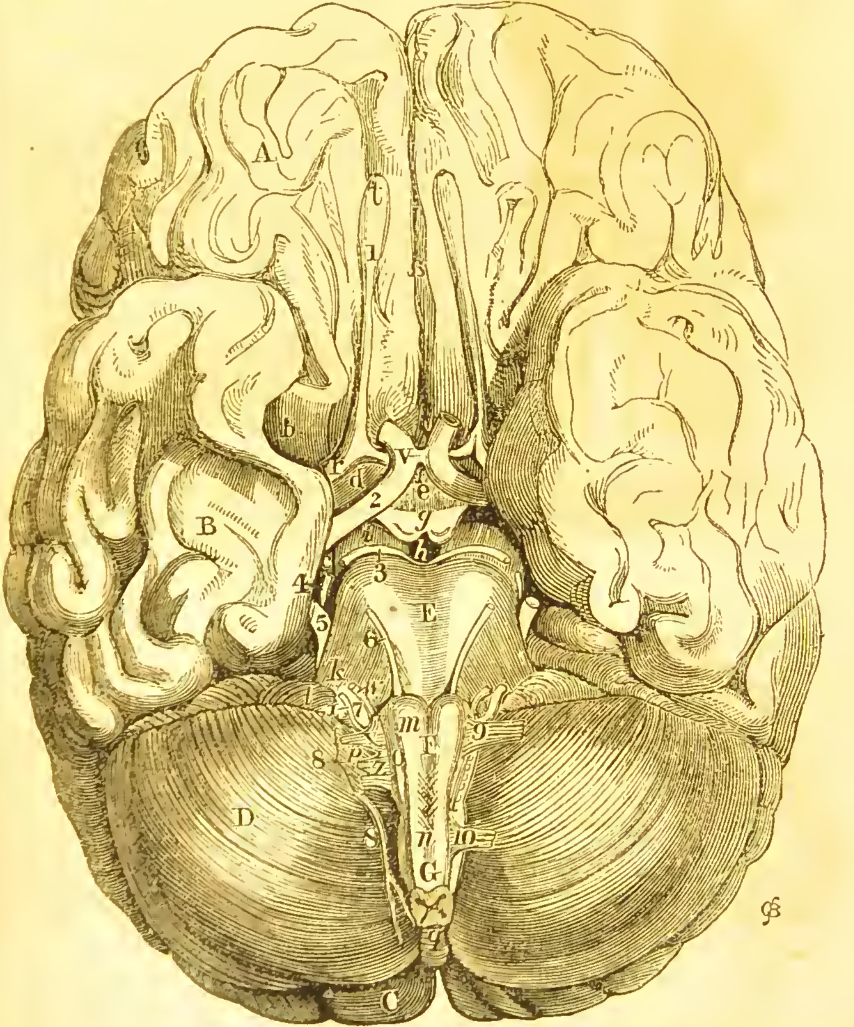
No. 5, the patella or knee-cap; No. 6, the upper end of the fibula or small bone of the leg; No. 1, thigh bone; 3, leg bone.—*From Dr. Smith.*

Tracing them from without inwards we see, then, that the various coverings afforded to the brain, the central organ of the animal life, seated in its vaulted cavity, are—1, The tegument, consisting of the skin and of cellular and adipose membrane. 2, Beneath the tegument, muscles, in the forepart and at the vertex, comparatively slender and delicate; at the sides and posteriorly, thick, strong and powerful. 3, Beneath the muscles, a thin but dense membrane, termed the



a, the scalp, turned down; *b*, the cut edge of the bones of the skull; *c*, the external strong membrane of the brain (dura mater) suspended by a hook; *d*, the left hemisphere of the brain, showing its convolutions; *e*, the superior edge of the right hemisphere; *f*, the fissure between the two hemispheres.

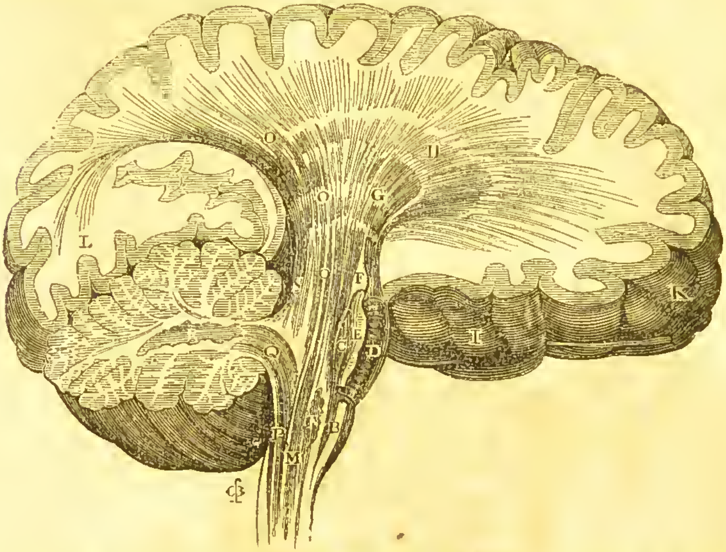
pericranium, lining the external surface of the cranial bones. 4, Beneath the pericranium, the bony substance of the cranium, consisting of two firm and hard bony plates with a spongy, bony structure, called diploë, interposed between them. 5, Immediately in contact with the inner surface of the bony substance of the cranium, and forming its internal lining, the dense and strong membrane, called the *dura mater*, not only affording a general covering to the brain, but sending firm partitions between individual portions of it. 6, A serous membrane lining the internal surface of the dura mater, and reflected over the entire surface of



This cut is from Quain and Wilson's beautifully-coloured drawing in their Nerves of the Human Body.

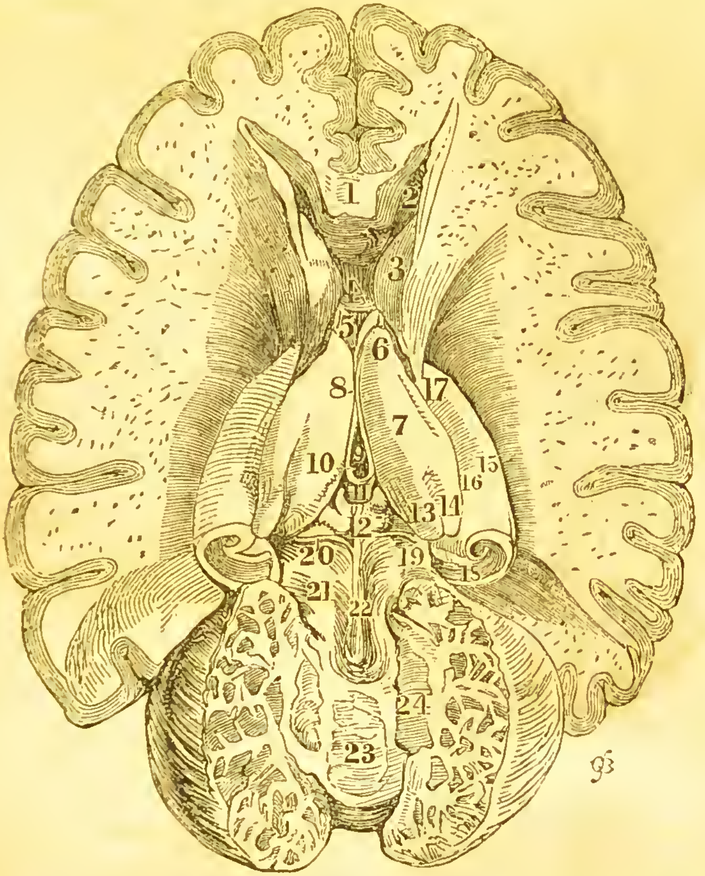
"The base of the brain, displaying the origins of the cerebral nerves. No. 1, the first cerebral nerve, the olfactory, to the nose; No. 2, the second optic nerve to the eye; No. 3, nerve of motion to the eye; X, nerve to the ear; G, junction with spinal column, the medulla oblongata; D, the cerebellum; E, pons Varolii.

the brain, termed the arachnoid tunic. 7, A thin and delicate membrane in immediate contact with the substance of the brain, descending between all its convolutions, lining all its cavities, and enveloping all its fibres, called the pia mater. 8, An aqueous fluid, contained between the arachnoid membrane and the pia mater. Skin, muscle, pericranium, bone, dura mater, arachnoid membrane, pia mater, and aqueous fluid, superimposed one upon another, form, then, the covering and defence of the brain; so great is the care taken to protect this soft and tender substance.—*Dr. Smith.*



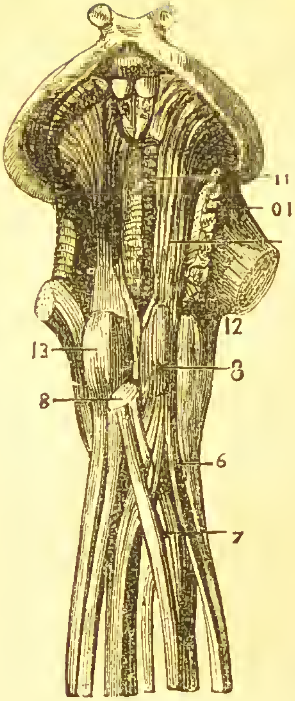
"In this drawing the development of the brain from the primitive fasciculi of the medulla oblongata, and the formation of the diverging fibres, described by Gall and Spurzheim, are exhibited. A section has been made through the outer third of the medulla oblongata and cerebellum; the crus cerebelli has been divided, and the outer convolutions of the right hemisphere carefully raised in the direction of the fibres."—*Quain and Wilson.*

A. The medulla oblongata. B. The corpus pyramidale. C. The fibres of the corpus pyramidale expanding in the grey substance of the pons Varolii. D. The pons Varolii. E. The divided edge of the transverse or converging fibres of the pons Varolii. F. The passage of the fibres of the corpus pyramidale through the crus cerebri. G. The course of the fibres through the thalamus opticus, the inferior cerebral ganglion of Gall. H. The corpus striatum (superior cerebral ganglion, Gall), from which the fibres diverge to the convolutions of the middle and anterior lobes. I. The lower part of the middle lobe of the cerebrum. K. The anterior lobe. L. The posterior lobe. M. The corpus olivare. N. The ganglion of the corpus olivare. O, O. The course of the fibres of the corpus olivare through the pons Varolii, crus cerebri, thalamus opticus and corpus striatum, to expand into the upper convolutions of the hemisphere and posterior lobe. P. The corpus restiforme. Q. The fibres of the corpus restiforme entering the substance of the cerebellum. R. The corpus dentatum (vel rhomboideum), or ganglion of the cerebellum. S. The processus è cerebello ad testes, or fibres of communication between the cerebellum and cerebrum.



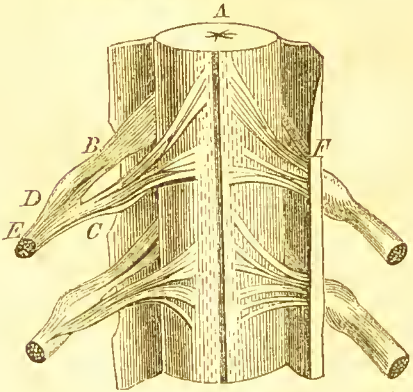
Section of the base of the brain, showing the NERVOUS CENTRES from and upon which the mind makes impressions to communicate sensation and motion to every part of the body through its telegraphic system, the nerves, which here all concentrate. B is the forepart of the brain, top of the forehead; A is the cerebellum at the back of the head, cut open to show other parts. A great deal has been written on the pituary gland, No. 11, as the one central point where the mind acts from.—*See page* 13 *of this Work.*

1. The anterior extremity of the corpus callosum; 2, the anterior corner of the lateral ventricles; 3, part of the corpus striatum; 4, the anterior commissure of the third ventricle; 5, the crura of the fornix; 7, the thalamus opticus; 8, the fissure between the thalami optici, which is called the third ventricle; 9, the foramen commune posterius; 11, the pineal gland; 12, the corpora quadrigemina; 13, the corpus geniculatum internum of the thalamus opticus; 14, part of the corpus geniculatum externum; 15, the hippocampus major; 16, the corpus fimbriatum; 17, the pes hippocampi; 18, the cut surface of the hippocampus major, showing the convoluted arrangement of the grey and white substance of which it consists; 19, 20, the upper surface of the crus cerebri; 21, the processus è cerebello ad testes; 22, the valve of Vienssens; 23, the middle portion of the cerebellum connecting the two lateral lobes.—*Quain and Wilson.*



VIEW OF THE CONSTITUENT CORDS OF THE SPINAL MARROW, SEPARATED, AND UNITING IN THE PYRAMIDS OF THE BRAIN.—*Lardner.*

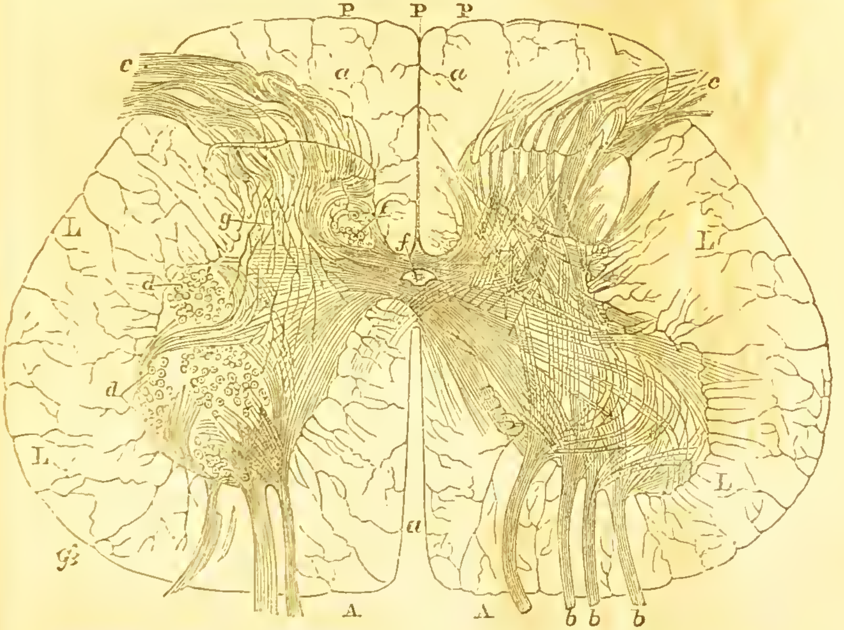
6. Anterior cord dividing itself into two, of which the innermost contributes to the formation of the corresponding pyramid; 7, middle or lateral cord, divided into four, which pass from the left to the right side, intersecting an equal number of similar ones coming from the opposite side, and taking the inverse direction; 8, the pyramids, of which the right is cut off immediately above the intersection, to show the olivary body (13) behind it.



A, Spinal marrow; B, root of spinal nerve from back portion; C, root from front portion; D, ganglion on the posterior part; E, the two parts united in one cord; F, the outer coating of spinal marrow.

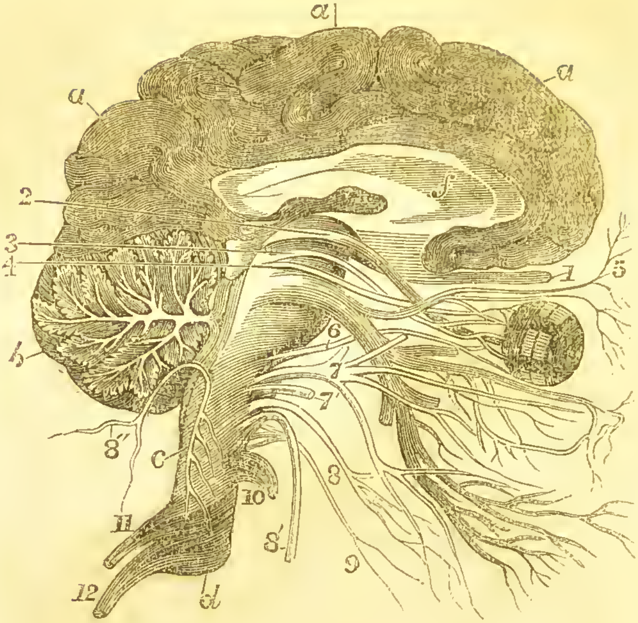
A section of the spinal marrow, showing the connexion between it and the spinal nerves by double roots, the nerves of motion and sensation.

According to Sir Charles Bell, Magendie, and others, a part of the filaments which compose each spinal nerve rise from [or terminate in] the back portion, and a part from the front portion of the spinal marrow (See Eng.). Those which rise from the back portion, *b*, almost immediately run into a ganglion *d*, and proceeding from this, they unite with those that come from the front portion *c*, and form the cord *e*, which goes out to be dispersed over the body. But in entering into the formation of the cord, the filaments retain their filamentary form and original character, and are again ultimately separated. The filaments which rise from [or terminate in] the back portion of the spinal marrow are the nerves of animal sensation. Some few of those are distributed to the muscles of voluntary motion, and endow those organs with a small degree of animal sensibility, by which the mind is informed of the action of the muscles in obedience to the will, and enabled to regulate the extent of the action. The rest of the posterior filaments proceed to the outer skin of the body, and by endowing it with a high degree of animal sensibility, constitute it a general organ of touch, which is the fundamental animal faculty of external relation. They however abound more in some parts than in others. In man, the ends of the fingers are pre-eminently qualified for this function.—*Graham.*



Transverse section of Human Spinal Cord, through the middle of the lumbar enlargement, showing on the right side the course of the nerve-roots, and on the left the position of the principal tracts of vesicular matter :—A, A, anterior columns ; P, P, posterior columns ; L, L, lateral columns ; *a*, anterior median fissure ; *p*, posterior median fissure ; *b*, *b*, *b*, *b*, anterior roots of spinal nerves ; *c*, *c*, posterior roots ; *d*, *d*, tracts of vesicular matter in anterior column ; *e*, tracts of vesicular matter in posterior column ; *f*, spinal column ; *g*, substantia gelatinosa.

With the spinal cord (in its limited sense) there are connected thirty-one pairs of nerves ; each of which corresponds to a vertebral segment of the body, and has two sets of roots, an anterior and a posterior, differing in their functional endowments. These divisions, of which the anterior is by far the larger, proceed to the anterior and posterior parts of the body respectively ; and are chiefly distributed to the skin and the muscles. The anterior branch is that which communicates with the sympathetic nerve.—In addition to these, however, the cranial prolongation of the spinal axis is the centre of all the cephalic nerves, save those of special sensation, which terminate in their respective ganglia. These cephalic nerves are for the most part distinguished by the peculiarity of their endowments.—*Carpenter.*



SIDE VIEW OF THE HUMAN BRAIN, SHOWING THE NERVES.

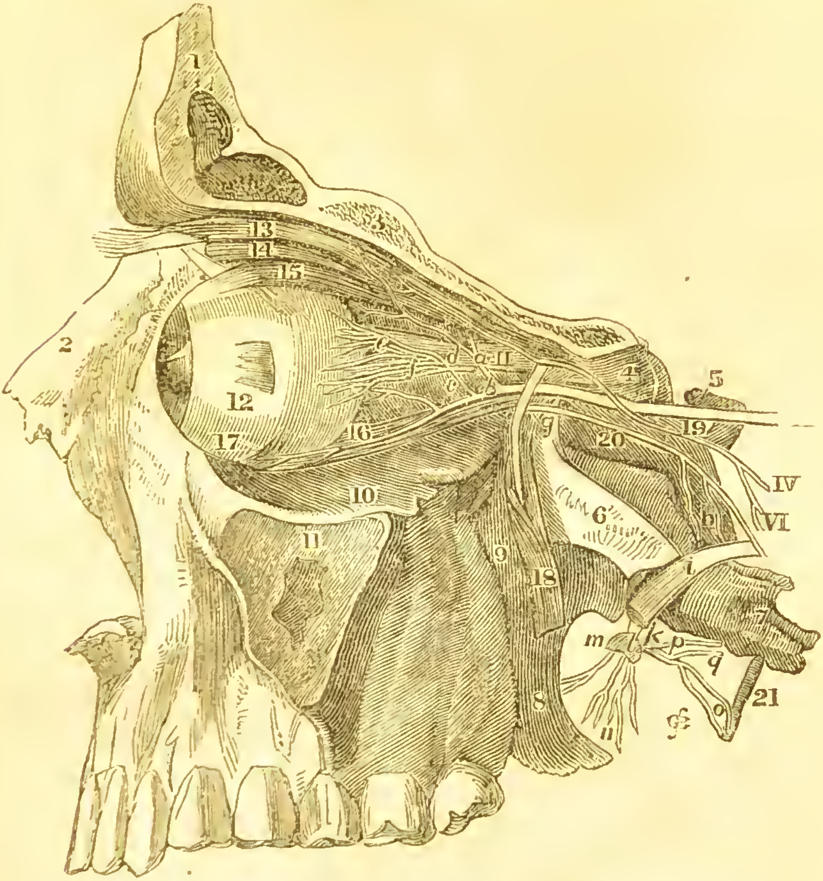
Spinal Cerebral System.—The three high order of nerves, through and by which the mind acts and governs the body.—(See p. 11 of this work.)

Longitudinal section of the cerebrum (*in the upper part of the head*), cerebellum (*back of the head*), and medulla oblongata. *a*, *a*, *a*, the cerebrum; *b*, the cerebellum; *c*, the medulla oblongata; *d*, the spinal marrow; *f*, the lateral ventricle. 1, the olfactory nerve; 2, the optic nerve; 3, 4, 5, 6, the third, fourth, fifth, and sixth nerves; 7, the portio dura of the seventh nerve; 7′, the auditory nerve; 8, the glosso-pharyngeal nerve; 8′, the par vagum; 8″, the spinal accessory nerve; 9, the hypoglossal nerve; 10, the suboccipital nerve; 11, 12, spinal nerves.

When we examine the outer surface of the brain, we observe it folded or convoluted (which shows a longitudinal section of the brain and upper part of the spinal marrow, with the nerves attached to them); and when it is cut into, we find it composed, 1st, of a grey pulpy substance, mostly placed externally, and, 2ndly, of a similar white substance, placed internally. The same materials exist in the spinal marrow, but the white matter is external, while the grey is internal.

The nerves generally, whatever be their apparent origin, pass through the system in ramifications more or less complicated, and, like electric wires, only discharge their functions, whether of motion or sensibility, at their terminations. The nervous cords are thus subject to endless division and subdivision, until they become in many cases so infinitely minute as to escape all observation, even by the aid of the microscope. Since each fibre has its own peculiar destination and special function, and since this destination and function is in relation with the brain, it must be apparent that the various ramifications, in successively uniting together, as they approach their origin, can never be deprived of their proper functions, nor lose their individuality. It must not, consequently, be supposed that there is any analogy between the cases of blood-vessels running into each other, where the confluent streams are mixed, to form a single current after their union, and those of nerves coalescing, so that two or more fibres form a single cord. It must be considered, on the contrary, that in such coalition there is no actual mixture of nervous substance, and that the fibres are merely ranged side by side in mechanical juxtaposition, without any more intimate union.

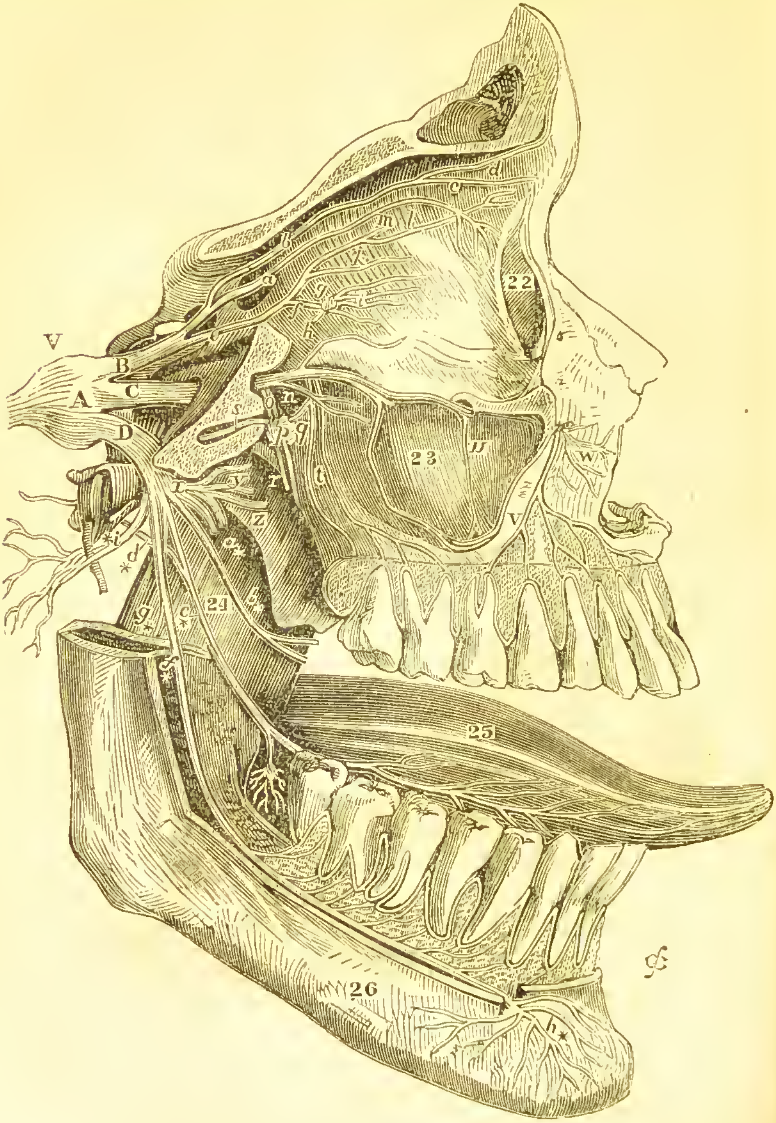
These conclusions, which are derived from analogies of irresistible force, based upon the physiological properties of the nerves, are fully corroborated and con-



THE TELEGRAPH WIRES, OR NERVES, FROM THE BRAIN TO THE EYE.

The nerves of the orbit, with the ophthalmic and otic ganglia, are here shown: 1, the section of the frontal bone, showing the cavity of the frontal sinus; 2, nasal bone of the left side; 19, the internal carotid artery. II. the optic nerve (*to the eye*); III. the third nerve. *a*, the superior branch of the third nerve; *b*, its inferior branch; *c*, the branch to the ophthalmic ganglion; *d*, the ophthalmic or lenticular ganglion; *e*, the upper fasciculus of ciliary nerves; *f*, the lower fasciculus. IV. the fourth nerve; VI. the sixth nerve. *i*, the trunk of the inferior maxillary nerve; *k*, its motor root; *l*, the otic ganglion; *m*, the internal pterygoid nerve, piercing the otic ganglion; *n*, filaments of communication with the auricular nerve.—*Quain and Wilson.*

firmed by direct observation. Each nervous cord is ascertained to be a bundle of fibres enclosed in a common sheath, these component fibres being very numerous, and of unequal thickness.

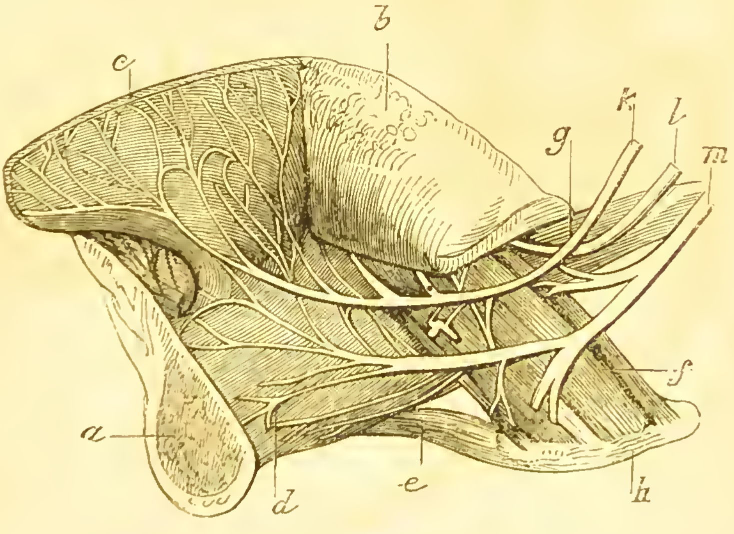


TELEGRAPH WIRES, OR NERVES, FROM THE BRAIN TO THE TONGUE, JAWS, &c. &c.

22, the depression in the lachrymal bone, for the lachrymal sac (*tears*), V. the fifth nerve: A, the Casserian ganglion; B, the ophthalmic nerve (*to the eye*), *a*, the lachrymal nerve (*causing tears to flow*); *b*, the frontal nerve; *c*, the nasal nerve (*for smell*); *f*, branch to the ophthalmic ganglion; *g*, the ophthalmic ganglion; *h*, its branch to the inferior division of the third nerve; *i*, its ciliary branches; *k*, ciliary branch of the nasal to the globe of the eye; *m*, the continuation of the nasal nerve through the anterior ethmoidal foramen into the nose; c, the superior maxillary nerve; *n*, its orbital branch; *o*, branches of communication from Meckel's ganglion; *p*, Meckel's ganglion; *q*, spheno-palatine branches of Meckel's ganglion; *r*, palatine nerves; *t*, posterior dental branches of the superior maxillary nerve; *u*, a dental nerve given off from the superior maxillary while in its canal, and passing between the mucous membrane and outer wall of the antrum to supply the teeth; *v*, anterior dental branch; *w*, terminal branches of the superior maxillary distributed to the face; *x*, the muscular division of the nerve; *c**, the gustatory nerve; *d**, the chorda tympani nerve; *h**, the mental nerve; *i**, the auricular nerve.—*Quain.*

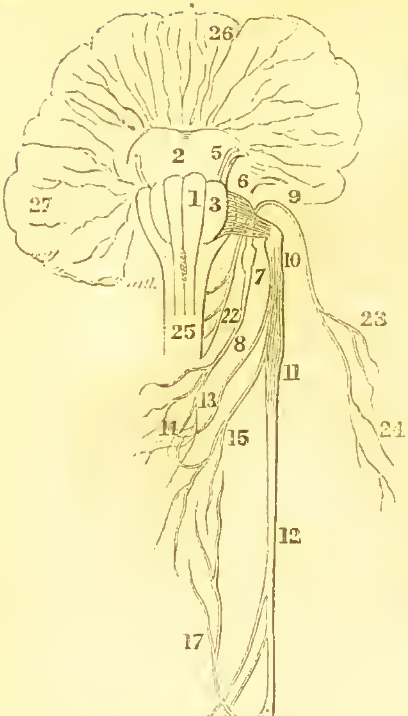
NERVES OF THE TONGUE.—The mucous membrane of the tongue, which, as has been observed, is the seat of gustative sensibility, is supplied with nerves from two principal sources: first, from the trigeminal or trifacial nerves, being those of the fifth pair; and secondly, from the glosso-pharyngeal, or ninth pair. According to Professor Sappey, filaments are also sent to this membrane by the pneumogastric, or tenth pair.

The trigeminal sends a voluminous branch, called the *lingual nerve*, into the lower jaw. This branch, entering the tongue, ramifies through the organ, its filaments terminating in the mucous membrane of the superior surface. It supplies all that part of the tongue which extends from the point over three-fifths of its length. The posterior two-fifths are supplied with nervous filaments by the principal branch of the glosso-pharyngeal.



NERVES AND MUSCLES OF THE TONGUE.—*Béclard.*

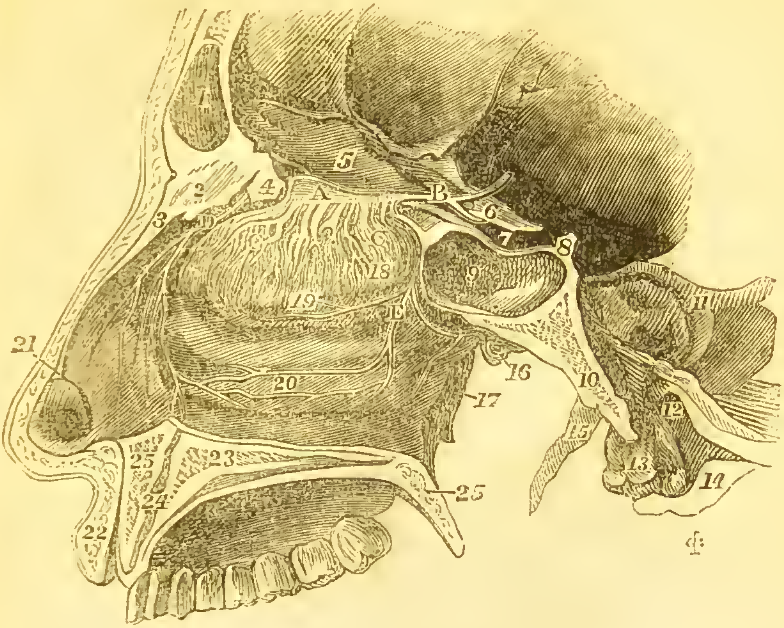
a, Section of the bone of the lower jaw; *b*, dorsal or superior surface of the tongue; *c*, vertical section of the tongue; *d*, genio-glossal muscle; *c*, genio-hyo-glossal muscle; *f*, hyo-glossal muscle; *g*, stylo-glossal muscle; *h*, hyoid bone; *k*. lingual nerve; *l*, glosso-pharyngeal nerve; *m*, hypoglossal nerve.



THE BRAIN AND NERVOUS CENTRES, AND PNEUMOGASTRIC NERVE BRANCHING OFF FROM IT.

As a specimen of the mode in which the nerves proceed from the brain, I give this, called the Pneumogastric, from the Greek (the lung and the belly), so named from its distribution. "A nerve which arises on each side by many filaments from the lateral part of the medulla oblongata, immediately below the origin of the glosso-pharyngeal nerve. It passes out of the cranium along with the glosso-pharyngeal nerve, through the foramen lacerum posterius. Immediately after quitting the cranium, it is slightly enlarged for about an inch of its course, forming what is called its ganglionic enlargement. It descends in the neck at the outer and back part of the common carotid artery, in the cellular sheath of which it is included. In the neck it gives off the pharyngeal branch, the superior laryngeal, and twigs which contribute to form the cardiac plexus. It passes into the chest between the subclavian artery and vein, guiding off the inferior laryngeal or recurrent nerve, which twines round the subclavian artery on the right side, and the aorta on the left. In the chest it sends twigs contributing to the formation of the pulmonary and œsophageal plexuses. Lastly, entering the abdomen, it is finally dispersed on the stomach, sending twigs to the omentum and to the neighbouring abdominal plexuses.

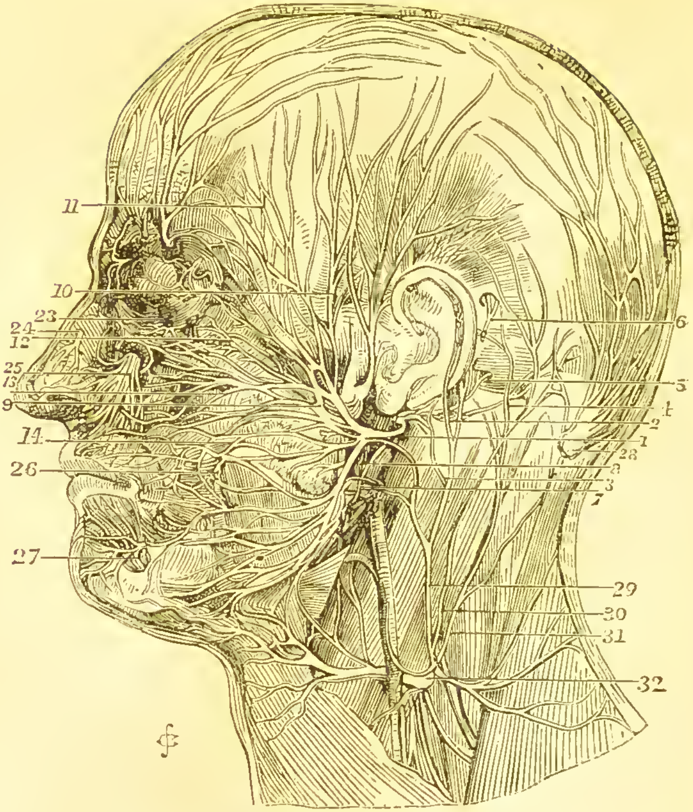
Origin and distribution of the Eighth Pair of nerves.—1, 3, 4, the medulla oblongata; 1, the corpus pyramidale of one side; 3, the corpus olivare; 4, the corpus restiforme; 2, the pons Varolii; 5, the facial nerve; 6, the origin of the glosso-pharyngeal nerve; 7, the ganglion of Andersch; 8, the trunk of the nerve; 9, the spinal accessory nerve; 10, the ganglion of the pneumogastric nerve; 11, its plexiform ganglion; 12, its trunk; 13, its pharyngeal branch forming the pharyngeal plexus (14), assisted by a branch from the glosso-pharyngeal (8), and one from the superior laryngeal nerve (15); 16, cardiac branches; 17, recurrent laryngeal branch; 18, anterior pulmonary branches; 19, posterior pulmonary branches; 20, œsophageal plexus; 21, gastric branches; 22, origin of the spinal accessory nerve; 23, its branches distributed to the sterno-mastoid muscle; 24, its branches to the trapezius muscle; 27, back of the head, the cerebellum, the opposite side to the fore part of the brain; 25, a continuation of the spinal marrow cut off.—*From Carpenter*



The distribution of the olfactory (to the nose) or first pair of cerebral nerves, by which the sense of smell is communicated to the centres in the brain.

The distribution of the filaments of the olfactory, spheno-palatine, and fifth nerves, to the mucous lining of the external wall of the right nostril.

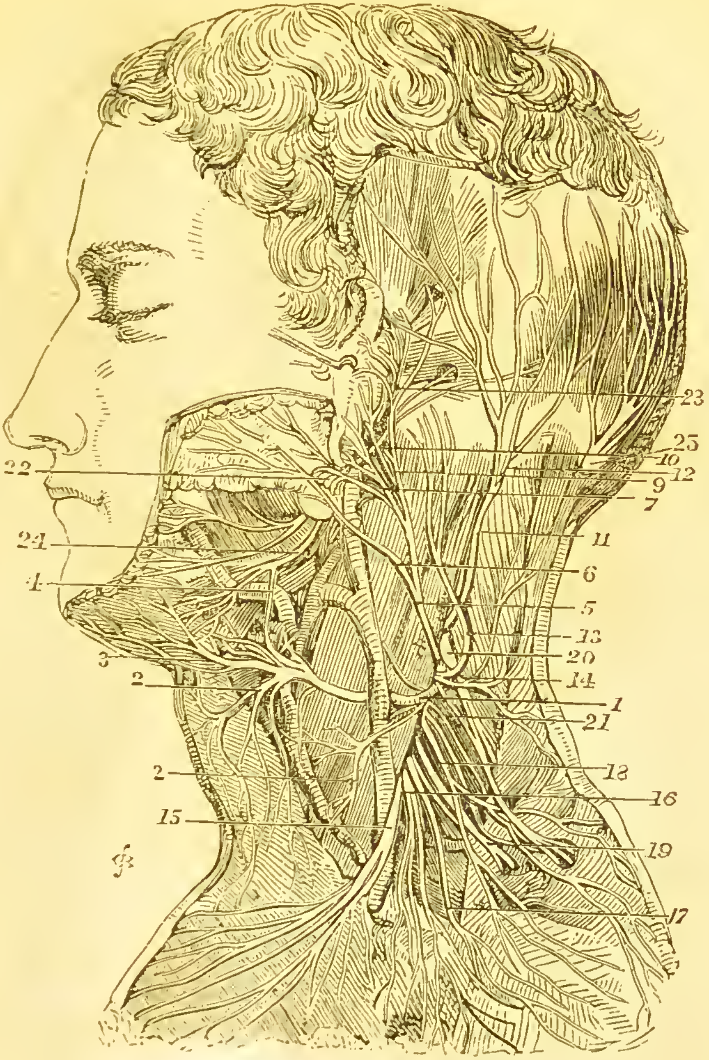
1, the cavity of the frontal sinus; 2, the nasal spine of the frontal bone; 3, the right nasal bone; 4, the root of the crysta galli; 5, the roof of the right orbit; 6, the anterior clinoid process of the sphenoid bone; 7, the concavity of the sella Turcica; 8, the posterior clinoid process; 9, the sphenoidal sinus; 10, the basilar process of the occipital bone; 11, the petrous portion of the temporal bone; 12, the anterior condyloid foramen of the occipital bone; 13, the right condyle of the occipital bone; 14, the inner aspect of the mastoid process; 15, the styloid process of the temporal bone; 16, the opening of the Eustachian tube; 17, the external pterygoid plate of the sphenoid; 18, the projection of the superior spongy bone arching over the superior meatus; 19, projection of the middle spongy bone arching over the middle meatus; 20, projection of the inferior spongy bone arching over the inferior meatus; 21, section of the soft parts of the nose; 22, section of the upper lip; 23, 23, section of the hard palate; 24, the naso-palatine canal; 25, section of the uvula. A, the bulb of the olfactory nerve; B, the three roots by which it arises from the brain; C, C, the distribution of its filaments to the mucous membrane covering the superior and middle turbinate bones; D, a twig from the nasal branch of the ophthalmic division of the fifth nerve; E, the spheno-palatine nerves, or nasal branches of Meckel's ganglion, entering the nasal fossa through the spheno-palatine foramen.—*Quain and Wilson.*



THE SUPERFICIAL NERVES OF THE FACE AND HEAD.—*Lardner.*

These nerves govern all the motions of the muscles of the scalp, the ear, the mouth, lips, nose, and eyelids, the integuments of the ear, and the upper part of the neck.

The nerves here described, which are all ramifications of the seventh pair, are exclusively motor, including no sensitive fibres. The parts to which they give motion receive sensibility from the nerves of the fifth pair, called the trifacial or trigeminal nerves. Thus the functions of motion and sensibility are in this case attached to different systems of nerves, while in the case represented in the following figures of the cervical and other nerves, each cord is a compound one, which includes both motor and sensitive fibres; and consequently, while it governs the movements of the parts over which it is distributed, it also receives sensitive impressions from them, which it transmits to the nervous centre.

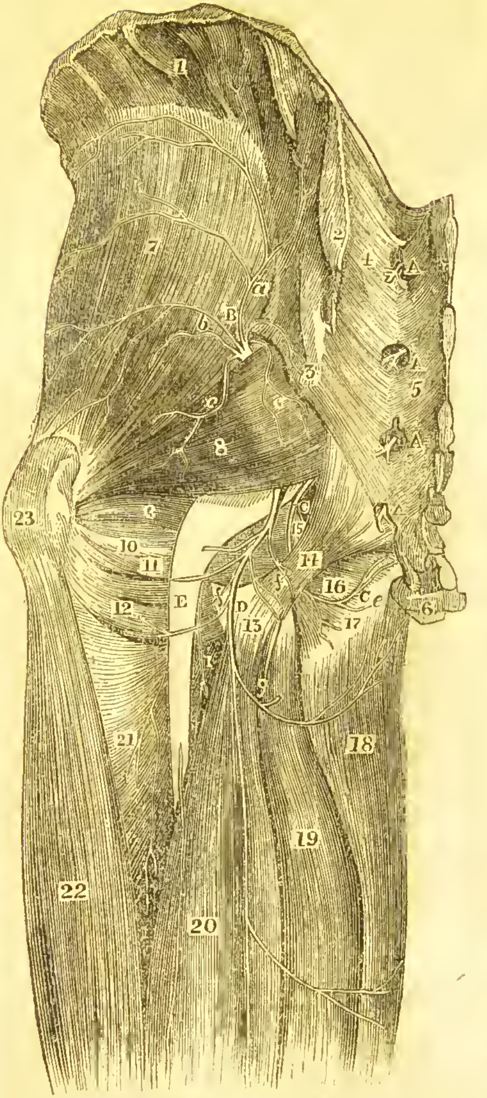


CERVICAL NERVES, TO CONVEY MOTION AND SENSATION TO THE PARTS REPRESENTED.—*Lardner*

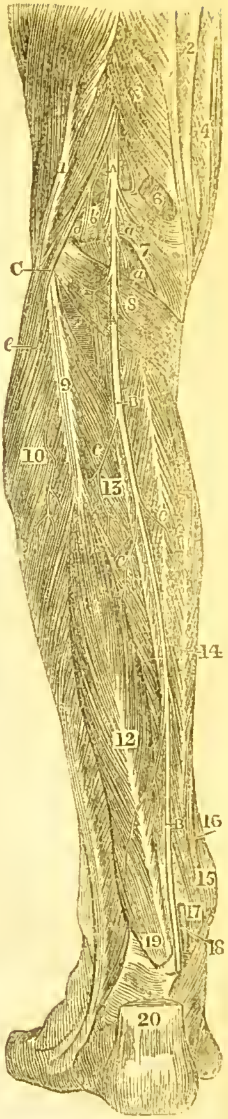
A system of nerves, also connected with the muscles of the neck and the lower part of the head, called the *cervical plexus*, is represented in the above engraving. A transverse branch (1) is directed forwards towards the jaw, and diverges into two ramifications; one (2) descending along the neck, and the other (3) ascending along the jaw. A branch (5), called the auricular, ascends to the ear Various branches (15, 16, 17, 19) descend to the chest.

ENGRAVING 1.

The great Sciatic Nerve, E, is often the seat of inflammatory action, called sciatica. See page 147 of this work.



ENGRAVING 2.



The branches of the sacral plexus of spinal nerves, as they issue from the lower part of the spinal column, to give sensation and motion to the legs.

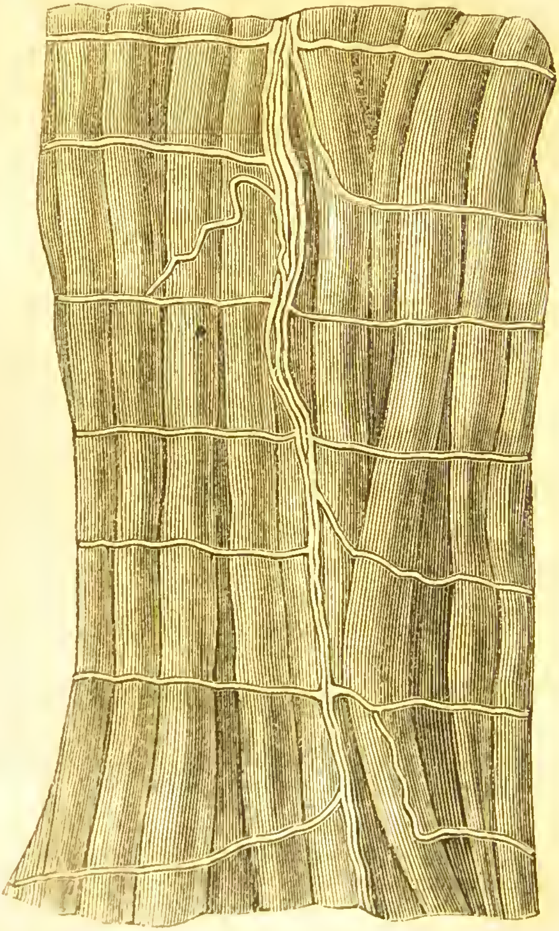
ENG. I. 23, the hip joint; 5, the lower end of the back-bone; 18, 19, 20, 21, muscles of the thigh ; E, the great sciatic nerve ; D, the small sciatic nerve ; A, A, A, the posterior branches of the sacral nerves, seen emerging from the vertebra of the spine ; B, the gluteal nerve ; C, O, the internal pudic nerve. The great sciatic nerve is the largest nerve in the body ; from its size and direction, it may be considered as the continuation or prolongation of the spinal plexus, it being impossible to determine where the one ceases or the other begins. The fasciculi, which enter into its composition or bundle, are derived from all the nerves which go to form the sacral plexus, and every voluntary motion of the leg and foot has to be transmitted through some of the nerves of this bundle. The great sciatic nerves divide generally about the middle of the thigh into an external and internal branch, the latter proceeding down to the heel, as shown in Eng. 2 ; from this will be seen the nature of sciatica.

ENG. II.—A, A, shows the continuation of sciatic nerve, called here the popliteal nerve. B, the fibular nerve ; 10, 12, 13, muscles. The tendon Achilles divided. 19, the tendon of the flexor muscle ; 20, the tendon Achilles ; 18, the posterior tibial artery.

ENGRAVING I.

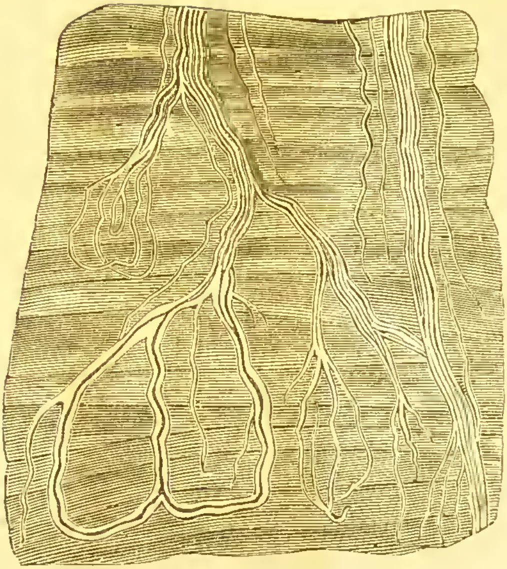
(*Quain and Wilson.*)

Magnified view of muscular fibres in the state of repose. The main nerve is seen proceeding down the centre, with branches from it on each side.



This shows the state of the muscles and nerves when a limb is at rest; when the limb or any part is moved, the electrical shock from the nervous centres, by the action of the mind, is shown at Engraving III.

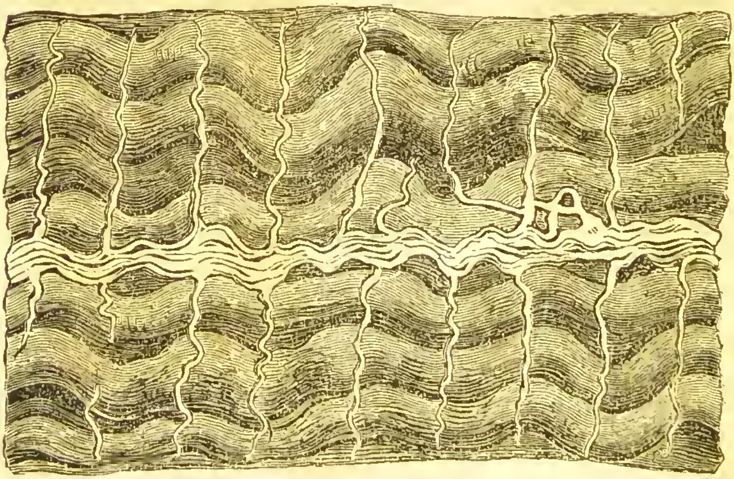
THE NERVES, OR TELEGRAPH WIRES, IN THE MUSCLES OR FLESH.



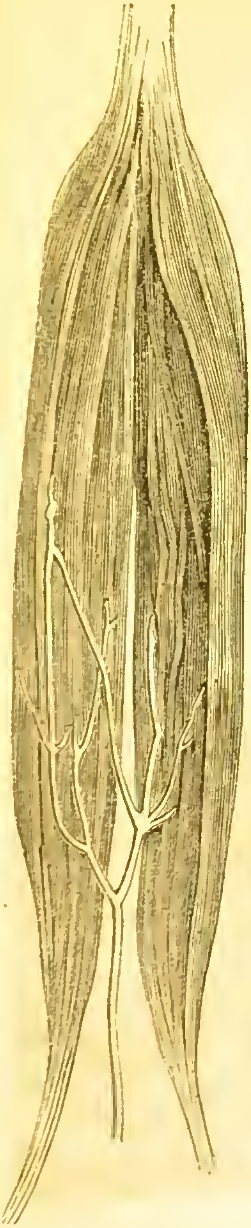
ENGRAVING II.

(*Quain and Wilson.*)

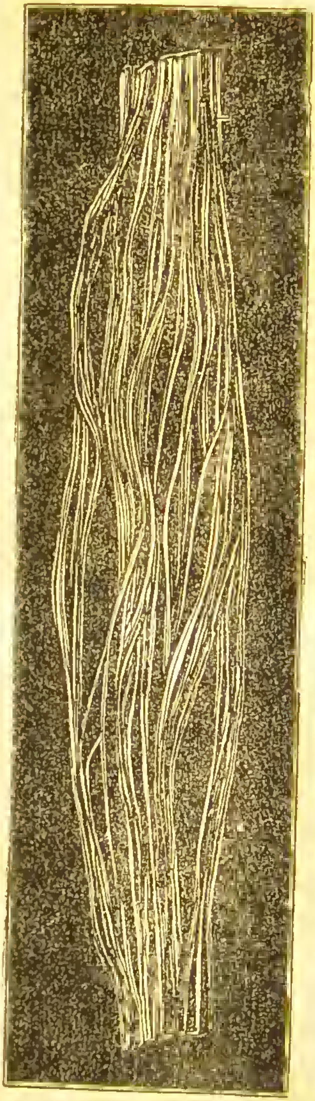
This engraving shows how the ultimate filaments of the nerves are disposed. After branching out someway, as in Engraving I., they become curved and return unto themselves, forming loops; or they incline towards a neighbouring branch, and form inverted arches; and, by this arrangement, carry power of motion and sensation to every part.



ENG. III.—(*Quain and Wilson.*)—This engraving represents the fibres in a state of contraction, when they are thrown into waving zigzag lines. This state is caused by the operation of the mind on the nervous centres in the brain, sending its telegraphic messages for action to some part by these nerves. This electric shock is performed for every voluntary motion.



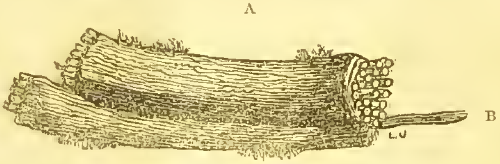
A muscle, the biceps flexor, with the nerve seen ramifying amongst the muscular fibre.



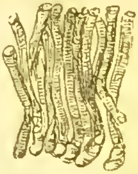
Nervous fibres, deprived of their neurilemma and unravelled, showing the smaller threads, or filaments, of which the fibres consist.—*Dr Smith.*

Ultimate fibres of nerve, very highly magnified; showing the strings of globules of which they consist.—*Dr. Smith.*

A nerve is represented in the following engraving, as drawn by Sir Charles Bell, consisting of many cords, or funiculi, wrapped up in a common cellular sheath. A is the nerve, and B a single funiculus drawn out from the rest. Independently of the common sheath, or neurilemma, each particular compound cord has a sheath of its own. All these sheaths are composed of the same fibrous tissue, which appears to be nothing more than a continuation of the tissue which constitutes the neurilemma or sheath of the spinal cord.—*Lardner.*



The interesting discovery has been made within these few years, by German anatomists, that these fibres, and all the fibres composing the nervous matter, are tubes filled with a fluid. The annexed sketch shows the fibres of one of the nerves magnified, with the fluid contained in them escaping from their extremities. It is probable that this discovery may be the means of throwing some light upon the functions of this hitherto little-understood part of the animal frame.



The nervous system is made up of two substances, readily distinguishable by their colour, texture, and consistence. One is greyish, or rather a pale ash colour, and hence named *cineritious* (substantia cinerea); and as in the brain it forms an investment for the white substance, it is usually termed *cortical* (s. corticalis). The other substance is of a pure white colour, and from the relation just indicated is called *medullary* (substantia medullaris). The grey substance invests the cerebral hemispheres, and forms at the same time several masses disposed in their interior; but in the medulla spinalis it is altogether deeply seated.

The white substance, on the contrary, is enclosed by the grey in the brain, but becomes the cortex in the medulla. The cineritious substance is more soft and vascular than the other, and when minutely injected appears as if entirely composed of vessels. Though the white substance in the natural state is not much firmer than jelly, it acquires a great degree of firmness by maceration in spirit, and presents at all times a distinctly fibrous appearance. When these two sorts of nervous matter are attentively examined, they will be found to consist of a peculiar substance called *neurine*, deposited in the areola, of a delicate cellular tissue. This anatomical element, in its natural condition, is soft and semi-fluid, and wherever it predominates much, the part will be pulpy and almost diffluent, whilst other portions of the structure are comparatively firm, by reason of the greater quantity of cellular tissue which they contain. The colour of neurine presents some varieties, being white, grey, or yellowish, and in some places of a dusky hue.

When a thin layer of nervous substance is examined with a microscope, it presents the appearance of small granules, placed in lines more or less regularly; but their form and size are liable to vary. These have been taken by some observers for globules, and have formed the basis of many speculations concerning the nature of nervous action.—*Quain and Wilson.*

The following, on the Eye, is from Lardner :—

The iris is a thin flat annular diaphragm, the section of which is shown at 7, dividing the space between the crystalline lens and the cornea unequally into two parts, called the *anterior chamber, a,* and the *posterior chamber, á.* The external or anterior surface of the iris is coloured blue, black, or hazel, differently in different eyes, and is the part which, seen through the transparent cornea, gives the characteristic colour to the eye. The pupil is a circular opening surrounded by the iris, through which the light received through the cornea is transmitted to the crystalline lens. By this means there is admitted to the crystalline a pencil of rays whose external limits are determined by the edges of the iris. The posterior surface of the iris is covered by a black pigment, contained in a thin transparent membrane, called the *uvea*. In Fig. 421 a view of the ciliary processes (1) which surround and support the crystalline lens is given. That lens, however, being supposed to be removed, the converging folds of which they consist are shown, and the iris (2) is seen by its dark posterior surface through the space filled by the crystalline, with the pupil (3) in its centre. When seen from the front, the pupil appears as a black circular spot, surrounded by the coloured ring of the iris, because every part of the interior of the eye which could be visible through it is coloured black. The aqueous humour fills the compartment of the eye between the cornea and crystalline, and, as its name implies, is a watery fluid holding in solution very minute quantities of albumen and common salt. It is separated from the cornea by an extremely thin transparent membrane, shown at 420, ^{11}, called the *membrane of the aqueous humour*, which however is represented much too thick in the figure.

The crystalline lens (420, *b*) is enclosed in a transparent capsule, and consists of transparent matter, which increases in density and in its refractive power, proceeding from its external surface inwards, and from its edges to its centre. The vitreous humour fills the posterior compartment of the eye (420, *cc*) behind the crystalline, and constitutes by far the largest part of the internal cavity. This is not in immediate contact with the retina, being enclosed in a fine transparent membrane called the *hyaloid* (420, ^{9}). The eyelids are not in immediate contact with the sclerotic or the cornea. A fine mucous membrane, called the *conjunctiva*, which lines their inner surface, is reflected over the fore part of the sclerotic and the anterior surface of the cornea. A part of this membrane is shown in section at 420, ^{1}. The eyebrows and other accessories are provided for the protection and preservation of the organ of vision. The eyebrows across the edge of the projecting part of the forehead catch the sweat descending from above, and prevent it from falling on the eyes, and aid in shading the eyes from too intense light from above. The eyelids are movable screens, made so as to cover the eye or leave it exposed, as occasion may require. Glands are provided, by which all the parts which move in contact one with another are kept constantly lubricated.

The motor apparatus, by means of which the optic axis can be directed at will within definite limits to surrounding objects, consists of muscles inserted at various points of the sclerotica, and having their origin in the bones of the socket. These muscles are acted upon by a corresponding system of nerves.

The motions thus imparted to the eyeball are facilitated by a lubricating fluid secreted by a gland, called the lachrymal gland, placed over the eyeball. This fluid is continually spread upon the surface of the sclerotic, by the motion of the eyelids in winking.

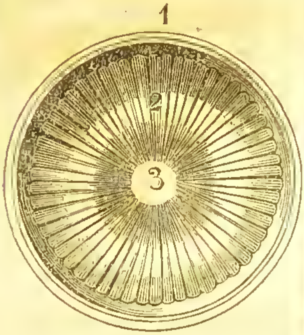


Fig. 421.

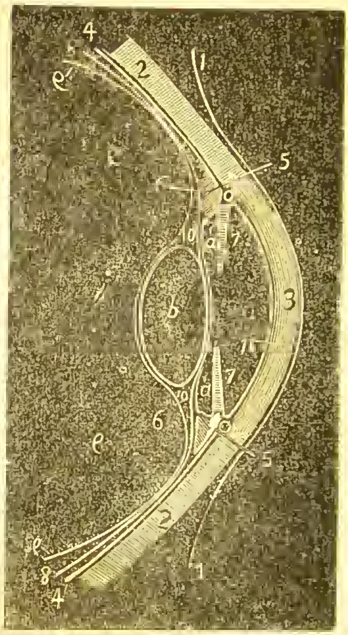


Fig. 420.

In fig. 422 the motor muscles and the lachrymal gland of the right eye are shown by the removal of the lateral bony parts of the external side of the socket.

NERVOUSNESS from over mental work, and not using proper means to counteract the wear on the brain.—A gentleman wrote to me six months since in much fear of passing his examination for the profession of the law. He had taken a good deal of animal food, under the idea that it would strengthen him; had smoked cigars to soothe his nerves; drank *moderately* of bitter ale and porter to give him vigour; he, however, felt that without some remedy he should soon be unable to study at all. In this state wrote to me, saying he could not possibly leave home. After reading my book, he at once altered his mode of life; stopped cigars, drank water, took little animal food, no suppers, and soon felt benefit; he came to my establishment for six weeks before going to examination, during which time he laid aside his books, went to London, passed his examination without difficulty or nervousness. Four in the waiting-room ran away without facing the examiners, and some others were plucked, when, had they had some of our invigorating treatment and a wet body bandage at the time of examination, would probably have passed, and the whole course of their life changed.

1. Muscle which raises the eyelid. The tendinous expansion of this muscle has been cut away to display the palpebral portion of the lachrymal gland covered by it. 2. Muscle which directs the optic axis upwards. 3. Muscle which directs the axis outwards. 4. Muscle which directs the axis downwards. 5. Muscle of unascertained use. 6. Orbital part of lachrymal gland. 7. Palpebral part traversed by four ducts of orbital part, and sending into these small ducts or canalicules. 8, 8. Accessory ducts proceeding exclusively from the superior border of the palpebral part. 9. Another accessory duct with three lobules.

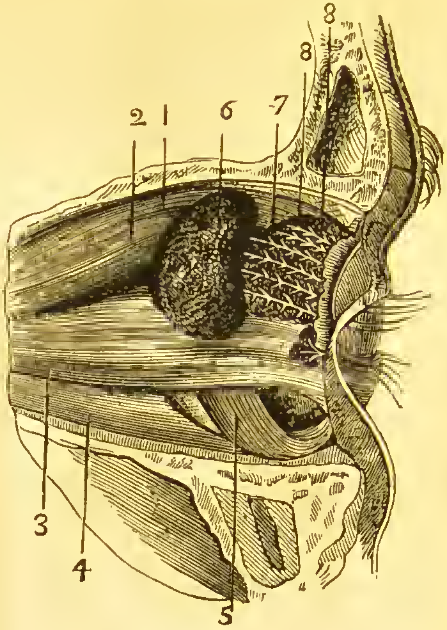
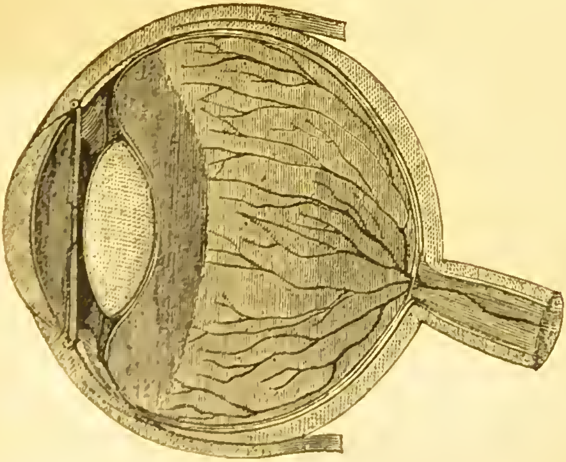
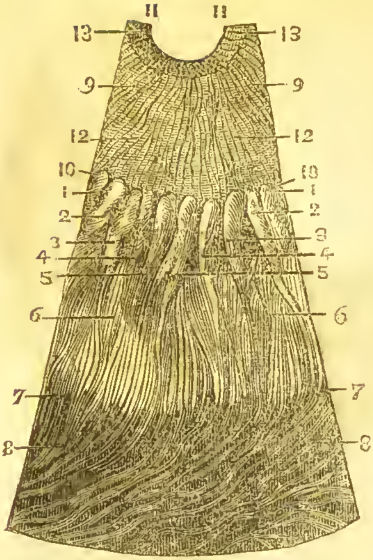


Fig. 422.

MOTOR MUSCLES AND LACHRYMAL GLAND OF RIGHT EYE.—*Sappey.*



VERTICAL SECTION OF THE LEFT EYE.—*Sappey.*



1 to 5. Ciliary processes. 4. Bifurcated process. 6. Veins ramifying from summits. 7. Festooned border of choroid. 8. Veins of choroid. 10, 11. Borders of iris. 12. Radiating fibres of iris. 13. Circular fibres.

SEGMENT OF IRIS MAGNIFIED.—*Sappey.*

The following is a short extract, and two cuts, from Lardner:—

The Ear consists of three distinct compartments, differing extremely from each other in their form. They are named by anatomists according to their order—proceeding from without inwards—the *external, middle,* and *internal* ear. *The External Ear.*—The part of this division of the organ visible on the outside of the skull, behind the joint of the lower jaw, is called the *pinna* or *auricle.* Proceeding inwards from the concha, the remainder of the external ear is a tube something more than an inch long, the diameter of which becomes rapidly smaller; its calibre is least about the middle of its length, being slightly augmented between that point and its connexion with the middle ear. Its section is everywhere elliptical, but in the external half the greater diameter of the ellipse is vertical, and in the internal, horizontal. This tube does not proceed straight onwards, but is twisted so that the distance from the concha to the point where it enters the middle ear is less than the total length of the tube. The external part of the tube is cartilaginous like the external ear, but its internal part is bony; the bony surface, however, being lined by a prolongation of the skin of the auricle. *Membrane of Tympanum.*—The internal extremity of this tube is inserted into an opening leading into the middle ear, which is inclined to the axis of the tube at an angle of about 45°. Over this opening, which is slightly oval, an elastic membrane, called the *membrane of the tympanum,* is tightly stretched, like parchment on the head of a drum. In Fig. 435 the several parts of the ear are shown divested of the surrounding bony matter; and to render their arrangement more distinct, they are exhibited upon an enlarged scale. The concha, with the tube leading inwards from it, marked *a,* terminates at the inner end, as already stated, in the tense membrane of the tympanum placed obliquely to the axis of the tube. The resemblance of this tube and the concha to the speaking or hearing trumpet is evident, and the physical purposes which it fulfils are obviously the same, being those of collecting and

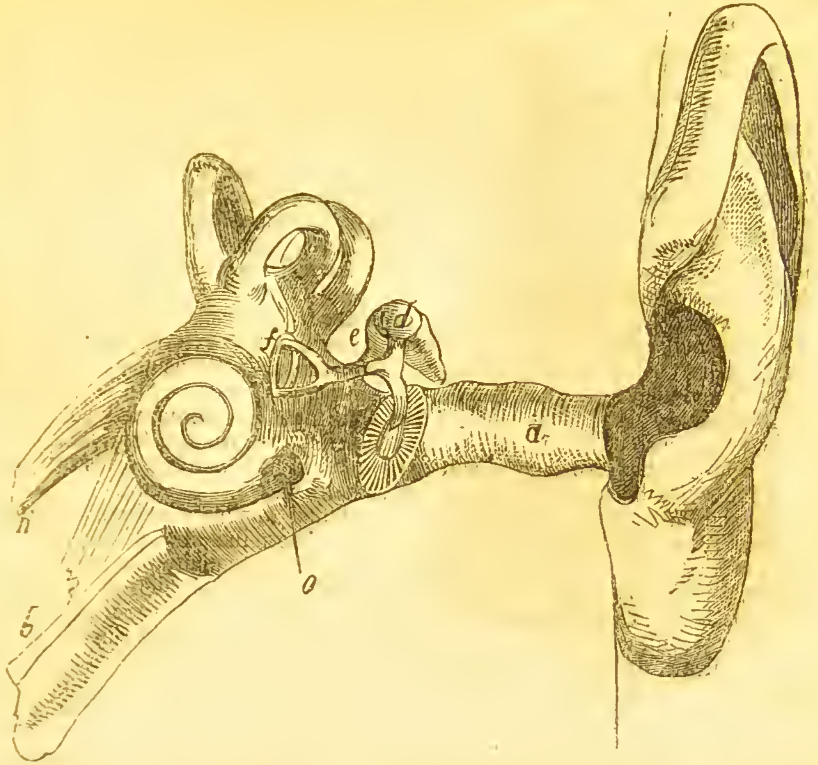


Fig. 435.

conducting the sonorous undulations to the membrane of the tympanum, which will vibrate sympathetically with them.

The Middle Ear is a cavity surrounded by walls of bone, which, however, are removed in Fig. 435, to render visible its internal structure. An opening corresponding to the membrane of the tympanum is made in the external wall, and the external part of the inner ear shown in the figure is part of its inner wall. The inner and outer walls of this cavity are very close together; but the cavity measures, vertically as well as horizontally, about half-an-inch, so that it may be regarded as resembling the sounding-board of a musical instrument, composed of two flat surfaces, placed close and nearly parallel to each other, the superficial extent of which is considerable compared with their distance asunder. This cavity is kept constantly filled with air, which enters it through a tube, *b*, called the *Eustachian tube*, opening into the pharynx, and forming part of the respiratory passages behind the mouth. Without such a means of keeping the cavity supplied with air, having a pressure always equal to that of the atmosphere, one or other of two injuries must have ensued; either the air in the cavity, having a temperature considerably above that of the external air, would acquire a proportionally increased pressure, which would give undue tension to the membrane of the tympanum, and perhaps rupture it, or the air confined in the cavity would be gradually absorbed by its walls, and would consequently be rarefied, in which case the pressure of the external atmosphere, being greater than that of the air in the cavity, would force the membrane of the tympanum inward, and ultimately break it. By means of the Eustachian tube, however, a permanent equilibrium is maintained between the air in the cavity and the external air, just as is the case in a drum, or in the sounding board of a musical instrument, where apertures are always provided to form a free communication with the external air.

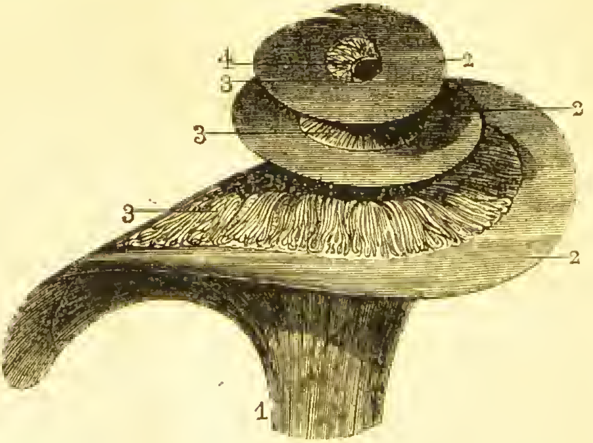
In the inner wall of this cavity there are two principal foramina, a greater and a lesser; the former being called, from its oval shape, the *fenestra ovalis*, and the latter the *fenestra rotunda;* the former is shown at *f*, in Fig. 435, and the latter at *o*. Over both of these, elastic membranes are tightly stretched, as the membrane of the tympanum is over the inner end of the external meatus.

Between the membrane of the tympanum and the membrane of the fenestra ovalis there is a chain, consisting of three, and in the young of four, small bones articulated together, and moved by muscles having their origin in the bones which form the walls of the cavity.

The Internal Ear.—We now come to consider the internal ear, which is, in fact, the true and only organ of the sense of hearing, the external and middle ears being merely accessories by which the sonorous undulations are propagated to the fluids included in the cavities of the internal ear.

The internal ear is a most curious and, as it must be acknowledged, unintelligible organ, also called, from its complicated structure, the *labyrinth.* Its channels and cavities are curved and excavated in the hardest mass of bone found in the whole body, called the *petrous* or bony part of the skull.

Within the three semicircular canals are included flexible membranous tubes of the same form, called the *membranous canals.* These include within them the branches of the auditory nerve, which pass through the semicircular canals, and they are distended by a specific liquid called *endolymph*, in which the nervous fibres are bathed. The bony canals around these membranous canals are filled with another liquid, called *perilymph*, which also fills the cavities of the vestibule and the cochlea. It appears, therefore, that all the cavities of the internal ear are filled with liquid, and it must, accordingly, be by this liquid that the sonorous undulations are propagated to the fibres of the auditory nerves. The liquid being incompressible, the pulsations imparted either by the auricular chain of bones, or by the air included in the cavity of the middle ear, or by both of these, to the membranes which cover the fenestra ovalis and the fenestra rotunda, are received by the liquid perilymph within these membranes, and propagated by it and the endolymph to the various fibres of the auditory nerve.



PERSPECTIVE VIEW OF THE SPIRAL LAMINA, WITH THE FILAMENTS OF THE AUDITORY NERVE UPON IT, DIVESTED OF THE COCHLEA.—*Sappey.*

VISION. The function which enables us to perceive the magnitude, figure, colour, distance, &c. of bodies.—The organs which compose the apparatus of vision enter into action under the influence of a particular excitant, or stimulus, called *light*. The properties of light, and the laws which regulate its movements, form the objects of the science of optics. In presenting the following account of the mechanism and conditions of vision, we must presume the reader to be acquainted with the principles of optics, and with the anatomical structure of the eye and its appendages. An explanation of the former would be foreign to the scope of this dictionary; an account of the latter is given under the head *Oculus.*

Mechanism of Vision.—In order the better to explain the action of light in the eye, let us suppose a luminous cone commencing in a point placed in the prolongation of the *anterio-posterior axis* of the eye. We see that only the light which falls upon the cornea can be useful for vision; that which falls on the white of the eye, the eyelids, and eyelashes, contributes nothing: it is reflected by those parts differently according to their colour. The cornea itself does not receive the light on its whole extent; for it is generally covered in part by the border of the eyelids. The cornea having a fine polish on its surface, as soon as the light reaches it, part of it is reflected, which contributes to form the brilliancy of the eye. The same reflected light forms the images which one sees behind the cornea. In this case the cornea acts as a convex mirror. The form of the cornea indicates the influence it should have upon the light which enters the eye: on account of its thickness, it only causes the rays to converge a little towards the axis of the pencil; in other words, it increases the intensity of the light which penetrates into the anterior chamber. The rays, in traversing the cornea, pass from a more rare to a denser medium; consequently they ought to converge from the perpendicular towards the point of contact. If, on entering into the anterior chamber, they passed out again, they would diverge as much from the perpendicular as they had converged before; and would, therefore, assume their former divergence; but as they enter into the aqueous humour, which is a medium more refractive than air, they incline less from the perpendicular, and, consequently, diverge less than if they had passed back into the air. Of all the light transmitted to the anterior chamber, only that which passes the pupil can be of use to vision: all that which falls upon the iris is reflected, returns through the cornea, and exhibits the colour of the iris. In traversing the posterior chamber the light undergoes no new modification, as it proceeds always in the same medium (the aqueous humour). It is in traversing the crystalline that light undergoes the most important modification. Philosophers compare the action of this body to that of a lens, the use of which would be to assemble all the rays of any cone of light upon a certain point of the retina. But as the crystalline is very far from being like a lens, we merely mention this opinion, which is generally received, to remark that it merits a fresh investigation. Everything positive which can be said on the subject is that the crystalline ought to increase the intensity of the light which is directed towards the bottom of the eye with an energy proportionate to the convexity of its posterior surface. It may be added, that the light which passes near the circumference of the crystalline is probably reflected in a different manner from that which passes through the centre; and that, therefore, the contraction and dilatation of the pupil ought to possess an influence upon the mechanism of vision, which deserves the attention of philosophers. The whole of the light which arrives at the anterior surface of the crystalline does not penetrate into the vitreous body; it is partly reflected. One part of this reflected light traverses the aqueous humour and the cornea, and contributes to form the brilliancy of the eye; another falls upon the posterior surface of the iris, and is absorbed by the dark matter found there. It is probable that something of this sort happens at every one of the strata or layers which forms the crystalline. The vitreous body possesses a less refractive power than the crystalline; consequently the rays of light which, after having passed the crystalline, penetrate into the vitreous body, diverge from the perpendicular at the point of contact. Its use then, with regard to the direction of the rays in the eye, is to increase their convergence. It might be said that, in order to produce the same result, Nature had only to render the crystalline a little more refractive; but the vitreous humour has another most essential use, which is to give a larger extent to the retina, and thus to increase the field of vision.—*Hooper.*

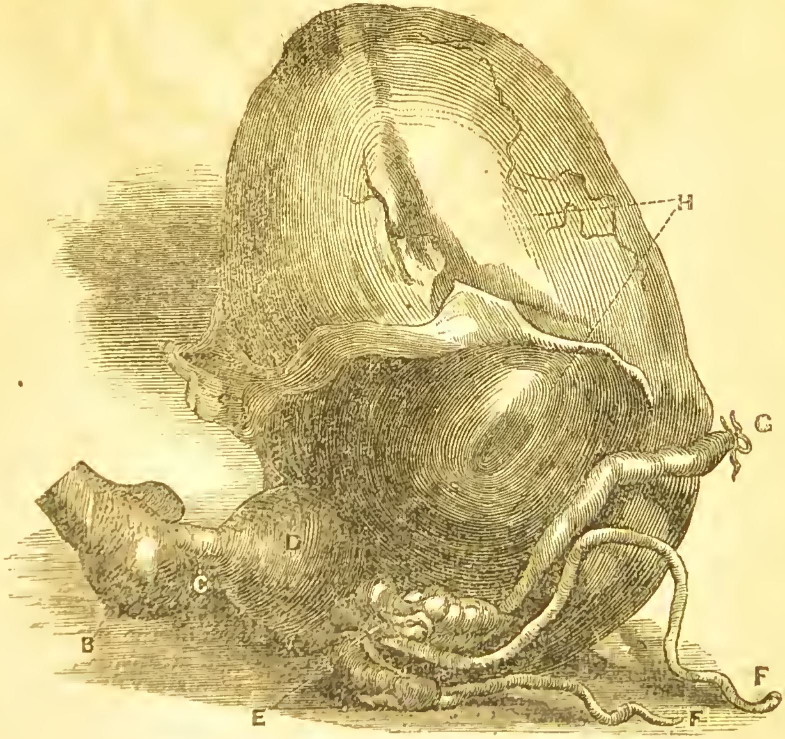
PNEUMOGASTRIC NERVE. (From the Greek—the lung, and the belly; so named from its distribution.) *Nervus vagus. Par vagum.* A nerve which arises on each side by many filaments from the lateral part of the medulla oblongata (*top of the spinal marrow, just within the skull*), immediately below the origin of the glosso-pharyngeal nerve. It passes out of the cranium along with the glosso-pharyngeal nerve, through the foramen lacerum posterius. Immediately after quitting the cranium, it is slightly enlarged for about an inch of its course, forming what is called its *ganglionic* enlargement. It descends in the neck at the outer and back part of the common carotid artery, in the cellular sheath of which it is included. In the neck, it gives off the *pharyngeal* branch, the *superior laryngeal*, and twigs which contribute to form the *cardiac plexus.* It passes into the chest between the subclavian artery and vein, guiding off the *inferior laryngeal* or *recurrent nerve* which twines round the subclavian artery on the right side, and the aorta on the left. In the chest, it sends twigs contributing to the formation of the *pulmonary* and *œsophageal plexuses.* Lastly, entering the abdomen, it is finely dispersed on the stomach, sending twigs to the omentum and to the neighbouring abdominal plexuses.

PNEUMONITIS. (From the Greek—the lung, and *itis*, the terminal, denoting inflammation). Inflammation of the lung. This disease has also been called *Pneumonia*, *Peripneumonia*, and *Peripneumonia vera.* It is characterised by fever, difficulty of breathing, cough, and a sense of weight and pain in the thorax. It is mostly produced by the application of cold to the body, which gives a check to the perspiration, and determines a great flow of blood to the lungs. It attacks principally those of a robust constitution and plethoric habit, and occurs most frequently in the winter season and spring of the year; but it may arise in either of the other seasons, when there are sudden vicissitudes from heat to cold.

Other causes, such as violent exertions in singing, speaking, or playing on wind-instruments, by producing an increased action of the lungs, have been known to occasion peripneumony. Those who have laboured under a former attack of this complaint are much predisposed to returns of it.

The true peripneumony comes on with an obtuse pain in the chest or side, great difficulty of breathing (particularly in a recumbent position, or when lying on the side affected), together with a cough, dryness of the skin, heat, anxiety, and thirst. At the commencement of the disease, the pulse is usually full, strong, hard, and frequent; but, in a more advanced stage, it is commonly weak, soft, and often irregular. In the beginning, the cough is frequently dry and without expectoration; but, in some cases, it is moist, even from the first, and the matter spit up is various both in colour and consistence, and is often streaked with blood. If relief is not afforded in time, and the inflammation proceeds with such violence as to endanger suffocation, the vessels of the neck will become turgid and swelled; the face will alter to a purple colour; an effusion of blood will take place into the cellular substance of the lungs, so as to impede the circulation through that organ, and the patient will soon be deprived of life. If these violent symptoms do not arise, and the proper means for carrying off the inflammation have either been neglected, or have proved ineffectual, although adopted at an early period of the disease, a suppuration may ensue, which event is to be known by frequent slight shiverings, and an abatement of the pain and sense of fulness in the part, and by the patient being able to lie on the side which was affected without experiencing great uneasiness.

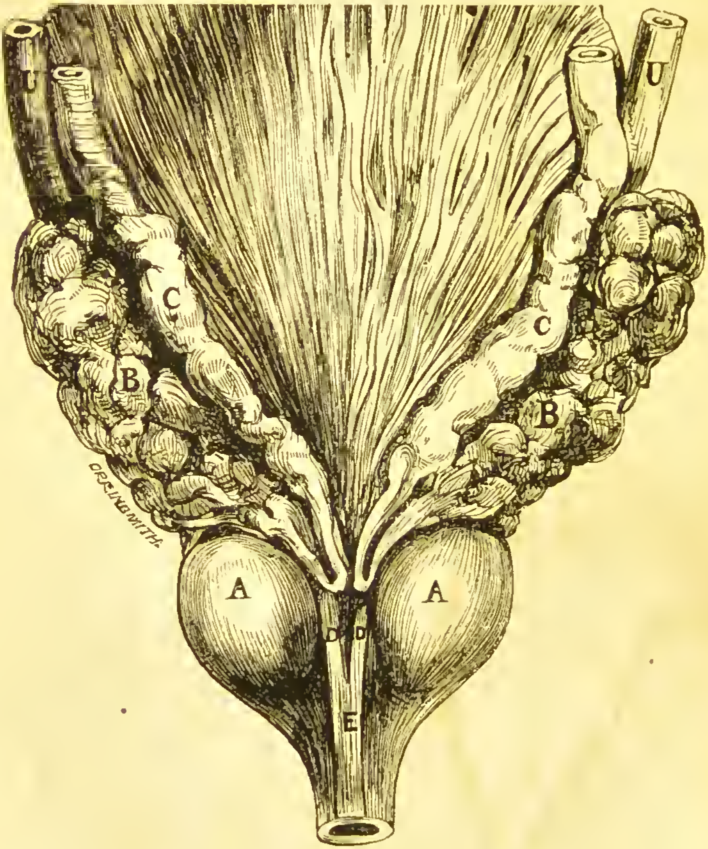
When peripneumony is not resolved, an effusion of blood takes place into the pulmonary substance, which becomes dark-coloured, ceases to crepitate, and emits a bloody serum when cut into, which is the *engouement du poumon* of the French pathologists: or coagulable lymph is thrown out, and the lung becomes solid and of the appearance of liver; whence this state is called *hepatisation:* or, lastly, inflammation of the lung may terminate in abscess more or less extensive. From the first of these three states, that of *engouement*, the affected part may recover so as to resume its former functions; but a hepatised portion of lung never recovers its natural texture. Large portions of the lung, however, may be hepatised, and yet the remaining healthy portions may be sufficient to carry on respiration; and the patient may live, though the breathing can never be free. An abscess of the lungs may break into the bronchial tubes; the matter may be expectorated, and the patient may recover. Where pneumonia is very intense, the whole substance of the lungs becomes infiltrated with purulent matter, a state which is necessarily and speedily fatal. Gangrene of the lungs is not common, but sometimes occurs, and chiefly in exhausted constitutions. It is indicated by the peculiar fœtor of the expectoration. Portions of the lungs have sloughed away, and yet the patient has recovered; but this is very uncommon. Generally speaking, when acute inflammation of the lungs produces the state of engouement, hepatisation, or abscess, to any extent, the case is fatal.



BLADDER, URINARY AND SEMINAL VESSELS.

B, bulb of urethra; C, membranous part of urethra; D, prostate gland; E, vesicula seminales; F F, vasa deferentia; G, the ureter, by which the urine passes from the kidneys into the bladder, see page 421; H, bladder covered by the peritoneum. (Bell's Anatomy.)

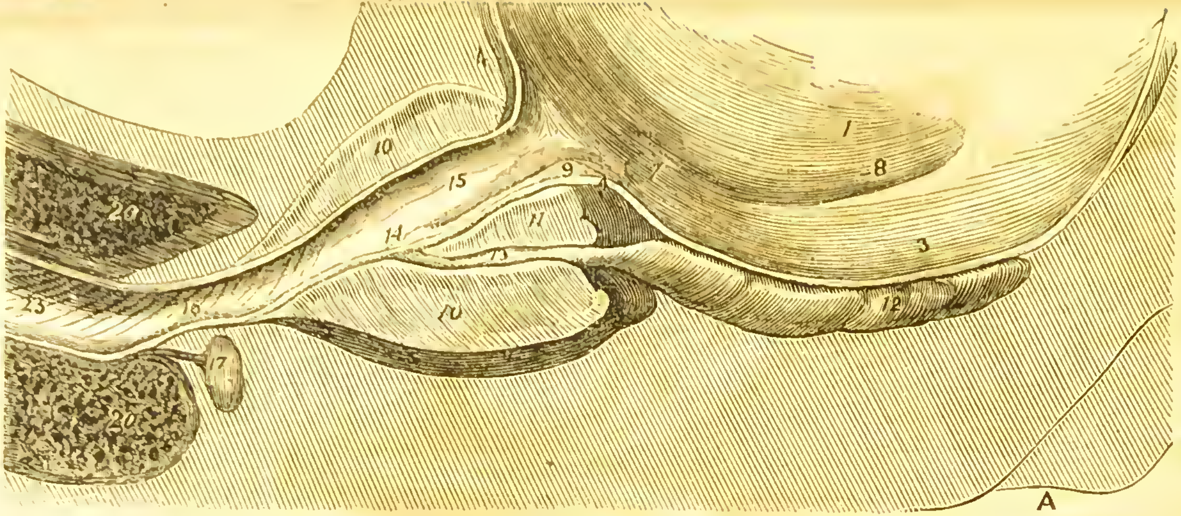
STRICTURE AND DISEASE OF THE URETHRA AND PROSTATE GLAND, often termed the old man's disease, is too important a subject to be omitted, although from the nature and causes of it, and the anatomy of the parts, it can only be briefly discussed in this work. Hodgson's work, and also Sir Charles Bell's Anatomy, and other works, give very interesting and necessary information for the prevention of these formidable, dangerous, and painful diseases. The benefit of the habitual use of the sitz bath will be obvious, when the complicated structure of the parts near the termination of the rectum is studied, and the injurious tendency of tight trowsers, long sitting on



This is a view of the base of the bladder, with the prostate gland, vesiculæ seminales, and vasa deferentia. *aa*, the lateral lobes of the prostate; *bb*, the vesiculæ seminales; *cc*, terminal portions of the vasa deferentia; *dd*, a pair of shallow grooves, which indicate the course of the ejaculatory ducts; *e*, a groove, which is sometimes seen on the under surface of the prostate, and corresponds to the urethra at that part; *u u*, the terminal portions of the ureters.—(From "Disease of the Prostate Gland," by Decimus Hodgson, M.D. Churchill, London.) See page 397.

soft heating cushions, and the use of alcoholic drinks, all which tend to excite and weaken the organs, as well as produce piles. The use of tobacco is also a very common cause of paralysis of these parts. The cuts are much curtailed from the original drawings in Sir Charles Bell's, and Quain and Wilson's Anatomy, from motives of delicacy.

The Prostate Gland nearly resembles a chestnut. It usually measures a little more than an inch from side to side, an inch from before backwarks, and half an inch in thickness. Situated deeply in the pelvis, it will be found to enclose part of the neck of the bladder and the commencement of the urethra at their junction; the tube, however, being so placed as that two-thirds of the substance of the gland lie beneath it.



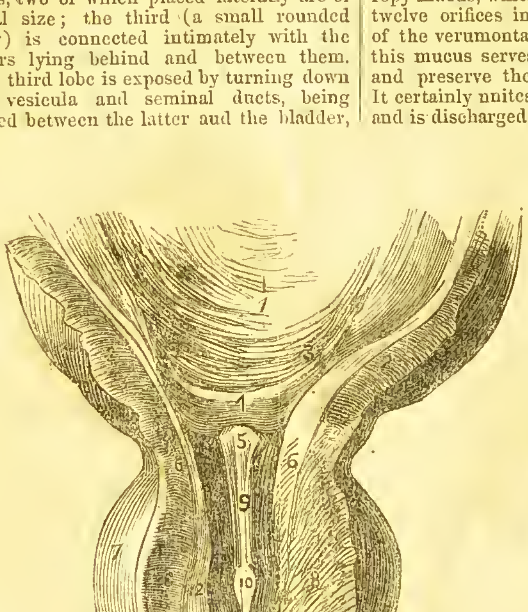
SIDE SECTIONAL CUT.

1, interior of bladder; 4, neck of bladder; 8, opening of one of the ureters into the bladder; 9, uvula vesica; 10, 10, prostate gland; 11, third lobe of prostate; 12, vesicula seminales of left side; 13, ejaculatory duct, passing beneath the third lobe, opening into the prostate portion of urethra; 14, verumontanum; 15, prostate portion of urethra; 16, membranous portion of urethra; 17, one of Cowper's glands, with its exeretory duct; bulbous portion of corpus spongiosum.

Preserved Cod's sounds are very nutritious and easy of digestion if properly prepared and very well boiled. We purchase of S. Overall, Son, and Co., 102, Lower Thames-street, London, price now 12s. 6d. per firkin: they keep well all the winter. First wash them well in several changes of warm water for ten minutes; then put them in a saucepan with milk and water; simmer for three hours; prepare a spoonful of flour, a little butter, and sufficient milk to make it the consistency of a soft paste; then take the sounds out of the saucepan, and as much of the liquor as will cover the sounds when laid on a dish; then put the whole, sauce and all, together into a saucepan, stir till boils, then serve up in a dish to table.

The prostate is also traversed by the common seminal ducts, which pass from behind forward through its substance, and open into the urethra; it also lays immediately beneath the anterior ligaments of the bladder, and rests on the middle portion of the rectum, to which it is united by means of dense cellular membrane.

The prostate gland consists of three lobes, two of which placed laterally are of equal size; the third (a small rounded body) is connected intimately with the others lying behind and between them. The third lobe is exposed by turning down the vesicula and seminal ducts, being placed between the latter and the bladder, and corresponds to the elevation described as the *luette vèsicale.* If enlarged, the third lobe forms a projection into the neck of the bladder, which would afford impediment to the evacuation of urine, or the introduction of an instrument. The tissue of the gland is resistant, of a greyish colour, and consists of a series of follicles aggregated together. These secrete a whitish ropy mucus, which is poured from ten or twelve orifices into the urethra, each side of the verumontanum. It is probable that this mucus serves to sheathe the passages, and preserve them from the acrid urine. It certainly unites also to the seminal fluid, and is discharged with it by the urethra.

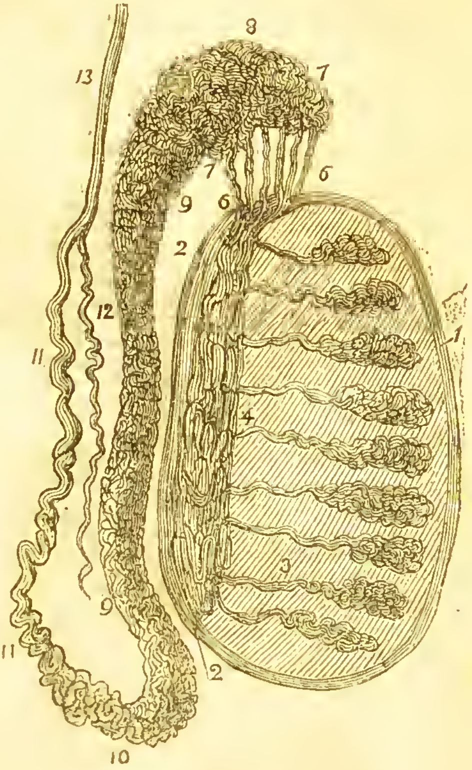


1, bladder; 2, 2, divided coats of bladder turned aside; 3, 3, openings of termination of ureters into the bladder; 4, triangular smooth surface inside base of bladder; 5, projection of mucous membrane at the commencement of the urethra; 6, 6, neck of the bladder; 7, 7, prostate gland; 8, 8, divided surface of prostate; 9, 9, prostatic portion of urethra; 10, verumontanum; 11, 11, opening of the seminal ejaculatory ducts; 12, 12, prostatic sinuses in which are seen the numerous openings of the prostatic ducts; 13, 13, membranous portion of urethra; 14, 14, Cowper's glands; 16, 16, bulb of urethra divided by a longitudinal incision; 20, bulbous portion of urethra. (From "Quain and Wilson's Anatomy.")

The testes are suspended at unequal heights, that of the right side being higher than the opposite: this disposition prevents the inconvenience or injury that might result from one being pressed against the other in certain positions of the thighs. They are two soft, pulpy, dark-yellow bodies, divided into lobes, and found to consist of vast numbers of minute tubes; in these tubes the seminal fluid is formed. According to Monro, their number is about 300, and the length of each 16 feet, making a total of 4,800 feet, and 1-200th of an inch diameter. The fluid is then transmitted from the vasa efferentia by the vasa deferentia through the spermatic cord over the lower part of the bladder to the vesicula seminales, which are two narrow membranous sacs, placed along the base of the bladder, and extend obliquely from the uterus to the base of the prostate gland; piercing which, they open into the urethra. The passages, however, from the vasa deferentia and the vesicula seminales continue separate and distinct into the urethra. (See page 397.)

SECRETING AND EXCRETING STRUCTURE OF TESTES.

3, 3, lobules of testes composed of the convolutions of the tubuli seminiferi, by which the seminal fluid is elaborated out of the blood; 4, 4, vasa recta; 5,5, reste testis; 6,6, vasa efferentia; 7,7, cases of tubuli formed by vasa efferentia; 8, mass of tubuli; 9, 9, body of the epididymis; 10, globular minor; 11,11, convulated commencement of vas deferens; 12, vasculum aberrans terminating in the commencement of the vas deferens; 13, vas deferens, which carries the seminal fluid by the spermatic cord round the base of the bladder into the vasa deferentia (as shown in cut, page 491, F), and by the vesicula seminales (E) into the prostate gland. (From "Quain and Wilson's Anatomy.")



PILES WHEN CAUSING EXTREME PAIN.—Apply fomenting pad squeezed out of very hot water to the painful part whilst preparing 98; and, after 98, have 144, with 153 same time; afterwards rub over the trunk and legs with tepid wrung-out towel; then well wrap thighs and legs with new flannel strips, and, if to be had, sciatica leg-cases over (see page 309). If a band of damped spongio kept on seat all the better—169 or 171. If no relief first operations, repeat until ease, or the piles bleed freely—48 would do good next day. These severe seizures come on generally from cold, and warmth only will bring vitality to the parts, and remove the congestion. After the severity of the attack is over, these hot applications will not be suitable, as they would relax too much. (See treatment, pages 117, 121.)

LIST OF BATHS

Practised at Mr. Smedley's Hydropathic Establishment, Matlock Bank, Derbyshire, from September 6th, 1858. This list is substantially the same as the 2nd Edition, but not the same as the 1st Edition of Hydropathy, published June 12th, 1858.

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1 Cold Dripping Sheet.

2 Hot sheet (90 deg., and cold.

3 One hot sheet and two cold.

4 Sheet 80 deg. and cold.

5 Two cold sheets.

6 Tepid dripping sheet, 70 degrees.

7 Ditto with pad 90 deg. to chest.

8 Cold dripping sheet, hot pad to chest, standing on flannel pad.

8½ Sheet 90 deg., and cold sponge over.

9 Ditto, and tepid sponge over.

9½ Sheet 90, can of cold dashed at the back while sheet is on.

10 Sponge Over 80 deg., standing on flannel pad.

11 Ditto, cold.

12 Rub over with dry sheet.

13 Hot Soaping, with pad.

13½ Ditto, and then rub the body dry with dry sheet, and rub over with either tepid or cold vinegar and water and hand. In delicate patients do part of the body at a time, and cover that part before doing next.

13¾ The vinegar and water without the suds.

14 Sponge over with sponge partly squeezed out of 80 deg., body covered over with blanket, standing in hot mustard, feet wiped with tepid towel after.

15 Ditto, sponge out of cold.

16 Stand on hot pad, and have several cans of cold water **dashed** on the back part of the body: hot pad to stomach and 73½.

16½ Ditto, 70 deg.

17 Pour can of 90 and one of 70 deg. alternately over affected part.—See page 501.

18 Rub over with **Sheet** partially **Wrung Out** of cold water.

19 Ditto, out of tepid.

19½ Ditto, given in a chair placing a large blanket underneath the sheet, and spreading both over chair, and have a hot mustard foot bath ready for feet. The patient sits down, putting feet into the mustard and water, then immediately wrap both sheet and blanket round the body and well rub over blanket for a minute or two, then quickly remove the sheet and rub the patient in the blanket in same way until warm and dry, then rub feet and ankles with hand and cold water, and well dry rub them with dry hands after.

20 Towel rubbing cold, hot pad to bowels, No. 13 first, doing upper part of body and then covering that part before doing lower part.

21 Ditto, without 13.

22 Ditto, **Tepid** towel.

23 Warm pad to chest while applying small **Mustard Poultices** between the shoulders, feet in hot mustard and afterwards rubbed with tepid towel.

24 Dry Rub Over all the person quickly 4 or 5 min. with hands only, covering body with blanket, feet on flannel pad.

25 Ditto with dry **Mustard.**

26 Rub over the upper part of the body, in bed, with wrung-out sponge cold; put on flannel vest, then sponge over lower part.

26½ Ditto, tepid.

27 Cold Shallow.

28 Ditto, 70 deg., and good rub over while in.

29 Pail of cold over shoulders and back.

30 80 deg. shallow, well rubbed.

31 Ditto, 86 deg.

32 Hot sheet, cold shallow quick.

33 Hot Shallow, raised from 95 to 100 or 105 deg., with soaping, then cold sponge, or No. 2.

34 Back spout in shallow.

35 Shallow, 90 deg., and soaping; lower it gradually to 80 deg., rubbing the body while it is lowering.

35½ Ditto, 100 to 105 deg., 10 to 15 minutes, soap, and lower to 80 deg., then dry rub.

36 Douche.

36¼ Ditto, standing in hot water.

36½ Ditto, hot pad to chest.

37 Hot sheet and douche.

37½ Hot spouting on affected parts, followed by No. 149.

38 Wet Pack. See page 43, hot can over blanket, legs from knees downwards, in dry blanket.

39 Ditto, pack sheet wrung out of **Hot.**

40 Ditto, with a hot pad at the back, and only hot can in front.

41 Ditto with **Hot Dripping** sheet first, or vapour.

42 Wet pack with **Legs in hot** foment pads.

42½ Wet pack, one hour or one hour and a quarter, after slight No. 51.

43 Body pack, hot can on front, one hour, no hot pad.

44 Ditto, pack sheet wrung out of hot.

44½ Ditto, the sheet wrung out of hot mustard and after, No. 12, replace body bandage wrung out of tepid mustard.

45 Towel pack.

46 Fomenting Pack, hot pad behind and before, hot can on blanket.

47 Ditto, with hot fomenting pads to legs.

48 Liver Pack, fomenting under right ribs and stomach for 20 minutes gently, then rub the part dry, then mustard plaister over liver till the part is red; wipe it off with soft paper or dry towel, and not with wet, then cover up with blanket, and lay small hot fomenting can over for ten minutes, then dry rub over stomach and bowels with dry mustard, put on dry body bandage three hours, then wet the bandage as usual.

49 Liver Pack. Double a towel in four, wrung out of tepid water, lay it over the liver, then a fold of flannel or small blanket over, then small fomenting can over the blanket three-quarters of an hour; rub the part with towel or sponge squeezed out of tepid water, then put on a piece of spongio slightly sprinkled with hot water, and wet body bandage over it.

50 Lazy Pack. Double a towel in four, squeeze it out of tepid water, lay it over the bowels; then double a small blanket in four, lay it over the towel; then either the small or whole hot can betwixt the folds of the blanket over the bowels; have cold wet head bandage on and mustard poultices on soles of feet, 1½ inch broad, so as to touch only the soles of the feet; lay in this pack 20 minutes, then sponge over the bowels with a sponge squeezed out of tepid water, and renew the pack as frequently as the state of the case requires; it may be renewed five or six times in as many hours with great advantage, when there is violent irritation of the stomach, or sickness.

51 Steam Bath six or eight minutes.

52 Ditto, and sponge over with water 70 deg.

53 Ditto, and cold sponge.

54 Ditto, and cold shallow.

55 Ditto, and shallow 70 deg.

56 Ditto, and **Douche.**

57 Hot sheet before steam bath.

57½ Pour some water 85 deg. over the head and shoulders, while in steamer.

57¾ Hold hot pad to front of body, while in steamer, and renew it out of hot water every few minutes.

58 Steam affected parts, and sponge with tepid.

59 **Spirit Lamp,** feet in hot water, cold cloth to head.

60 Ditto, with napkin wrung out of cold over stomach when the body begins to feel the heat, not before.

61 **Soap Over** with hot soap, then hot dripping sheet or vapour before spirit lamp, afterwards cold dripping sheet or cold shallow.

61½ **Turkish Bath,** cold wet head band frequently renewed, hot soaping, then tepid and cold sponge after.

62 **Fomentation** to chest, stomach, and bowels, pad wrung out of hot water dry blanket, and hot can over, tepid dripping sheet after; not cover up so much as to cause perspiration over all the body.

63 Ditto, well covered up, and cold dripping sheet, or cold sponging after.

64 Gently foment back and ront 20 minutes, with pads wrung out of 95 deg., then wipe over trunk with towel queezed out of tepid.

65 Foment pad and small hot an only on chest.

66 Ditto, and after rub all ver with sheet partly wrung ut of tepid water.

67 **Bowel Foment** for **Diarrhœa.** Feet in hot mustard water four minutes while undressing, then wrap body in blanket, lay down and ut hot can over bowels, and cover up, sipping cold water, r iced water, feet wrapped in ot flannel or blanket; remain n till pain is gone.

68 **Foment Chest** and hroat 15 minutes, wipe dry, nd then put on **Mustard Plaister** over part affected; wipe off with *dry cloth,* and ut on *dry* chest compress hree or four hours, then damp compresses.

69 **Fomentation** only to **Stomach** and **Bowels** one our, hot **Half Pad** and small hot can, afterwards put on body bandage wrung out of tepid.

70 Ditto, 30 minutes, gentle foment half pad **Without Hot Can,** and replace warm pad as it loses its heat.

70½ Ditto, with dry pad and hot can.

71 **Chest,** throat, and betwixt shoulders rubbed with cold water and hand three or four minutes, and replace chest compress dry; throw a blanket over person while performing the operation, and need not entirely undress.

72 Ditto, with tepid water.

72½ Ditto, with hot mustard and water till red.

73 Rub stomach and bowels with hand and cold water for four or five minutes, *gently* and lightly, whilst laying down on the back.

73½ Ditto, whilst standing one or two minutes.

73¾ Rub stomach and bowels with warm mustard and water, gently three or four minutes, standing in hot mustard with sitz bath blanket over shoulders and back, and then No. 12 without washing off mustard, afterwards replace body bandage wrung out of tepid mustard and water.

74 **Dry Hot** half pad over chest next the skin, without entirely undressing; then the chest compress over it, and button up the waistcoat to keep in the warmth for 20 minutes, if the warmth keeps up in the pad; if not, renew it. It should not be very hot to cause general perspiration. On removing the warm pad, rewet the chest compress with tepid water, and dress: the feet during the time in 137.

75 **Dry Foment.** Hot can over stomach and bowels, over one or two folds of blanket 40 minutes, and wipe part fomented with napkin squeezed out of tepid, and replace compress wrung out of tepid water.

75¼ Ditto, 20 minutes.

75½ Ditto, 10 minutes.

76 **For Digestion,** recline on sofa quiet and silent 20 minutes after every meal, with small hot can or mackintosh hot water bag to stomach over the dress, cold wet head bandage, hot bottle to feet, and sip a tumbler of cold or iced water.

77 Ditto, with feather pillow only, or soft cushion on stomach and bowels, and feet covered up.

78 **Constipation;** if no action and uncomfortable, apply the fomenting pad and can 20 minutes, and wear the body bandage, spongio, or calico and oiled silk, night and day, with flannel wrapper over in night.

78½ Ditto, then rub bowels over for a minute or two with hot soap-suds, and after wiping the suds off with a dry towel, rub in a little cod liver oil with hand, and put on dry spongio or flannel.

79 **Throat Pack** with napkin wrung out of cold water, two yards of dry flannel wrapper over, and wear all night; on rising, wash throat with cold water.

80 Ditto, with **Flannel Wrapper** wrung out of hot water, and dry flannel over it one hour, renewing the hot flannel as it cools; then pack with napkin wrung out of tepid and dry flannel over, and keep on all night, and in the morning wash the throat with tepid water.

81 **Mustard Plaister** to throat and top of chest, wipe off with dry paper, then put round the throat a piece of spongio sprinkled with warm water, dry flannel wrapper over it, keep it on all night, in the morning wash throat in tepid water.

82 **Throat Foment.** Take a yard of flannel, fold it in four lengthways, wring it out of hot water, wrap round throat, and one yard and a half of dry flannel over, renew every 15 minutes for one or two hours, wipe with tepid wrung-out towel, and put on spongio sprinkled with warm water and dry wrapper over.

83 **Sitz Cold,** ordinary sort.

84 Ditto, cold running.

85 Ditto, 65 deg., not running.

86 Ditto, 70 deg.

87 Ditto, 80 deg.

88 Ditto, 85 deg.

89 Ditto, 90 deg.

90 Ditto, 80 deg., eight minutes, run cold in one minute.

91 Ditto, run down to 65 deg.

92 **Sitz,** 80 deg., hot pad on knees and feet in hot water, and well covered up ten minutes, then dash feet in cold and dry rub.

93 **Sitz** 90 deg., **Hot Pad** to chest and back eight minutes, feet in hot, run down to 70 before coming out, if convenient, or sponge over 70 deg., and dry rub trunk.

94 Ditto, without pads.

95 Sitz cold **Washing.**—See page 6.

95½ Ditto, but avoid putting the legs into the water; only sponge the legs and dry rub the body with dry sheet, and blanket placed as No. 19½.

96 Ditto, **Tepid.**

97 Soap first, well rubbing the body, and if with hot soap and water the better.

98 Sitz, 100 deg., ten minutes; dip a pad in the hot water, and lay it over the back of bath, one over chest and bowels, and feet in hot water; keep arms well down in water and have blanket covering with the head out, then have soaping and a cold sponge over standing in the hot water.

99 Hot sitz two minutes, well soaping, and afterwards cold sponging or cold sheet.

100 Sitz, sit in **Empty,** and let cold water run in four minutes.

101 Ditto, sit in empty, run cold water in till full, then stop the tap, and remain in four minutes.

102 Sitz, filled with water, 100 deg.; sit in 10 minutes, and then run cold in two minutes.

103 Sitz, 65 deg. five minutes, and cold running one minute.

104 Sitz, 85 deg. 10 minutes, at eleven in the forenoon, and at four in the afternoon, and every day lower the temperature 4 deg., and increase the time four minutes, till it comes to 65 deg. and 25 minutes.

Ladies' Sitz need not Undress. Spread a dry sheet or towel over front of bath, and sit upon it.

105 Sitz, Ladies.

106 Ditto, cold, two minutes every two hours.

106½ Running sitz.

107 Ditto, 70 deg. six minutes, and one minute cold running.

108 Ditto, 80 deg. six minutes, and 60 deg. four minutes.

109 Ditto, sit in empty, turn cold in till full, and remain in a few minutes.

110 Ditto, 85 deg. eight min., and one min. cold running.

110½ Ditto, holding pad to stomach, wrung out of 90.

111 Spinal Rubbing, gentle sitting in cold sitz, with blanket over front, feet in hot mustard and water, warm pad to stomach.

112 Spinal Rubbing, sitting **Over** cold sitz, on dry flannel pad, feet in hot, and warm pad to stomach.

113 Spinal rubbing, gentle, with tepid water, ditto, ditto.

114 Spinal rubbing, gentle, with hot mustard water, and one minute cold water, and pad as above.

115 Spinal rubbing, gentle, three minutes, whilst sitting in 80 deg. sitz eight minutes, and pad as above.

115½ Sitz, 85 deg. 10 minutes, feet in hot mustard and water, cold wet head band on, and one minute gentle spinal rubbing; then rub feet with wrung-out tepid cloth, and then with dry; then put on woollen socks and shoes before getting out of bath; then dry the body with a sheet gently and dress, keeping on the wet head bandage, then No. 77.

116 Cold spouting spine.

117 Cold spouting affected part.

118 Hot spouting ditto, tepid after.

119 Ascending douche, cold, see page 51.

119½ Tepid ditto.

120 Back Wash, sit over sitz bath with cold water in, dip towel in water, and draw it over the back several minutes, feet in hot mustard and water, 90 deg. pad to stomach.

121 Ditto, 90 deg. and 65 deg., several minutes alternately; sit on hot pad, feet in hot mustard.

122 Back Sponge, as follows: sit over sitz, and have 90 deg. water, sponge spine downwards gently, with hot water running into the sitz slowly, till it increases to 100 or 105 deg., then turn cold water in slowly, and go on sponging till the water is quite cold, occupying eight minutes altogether; sit on warm pad, feet in hot mustard and water; well cover front of body with blanket.

123 Pour two or three **cans** of water 80 deg. down the spine, sitting over sitz, and rub dry, feet in hot mustard and water, 90 deg. pad to stomach.

124 Ditto, 70 deg. ditto.

125 Ditto, **cold.**

126 Spinal **slapping** with hands and cold water, one hand quickly and very lightly and gently following the other, three minutes, sitting on warm pad over sitz, feet in hot mustard and water and warm pad to bowels.

127 Ditto, with cold water and **mustard.**

128 Dry Rub Spine very gently until warm with dry mustard and hand, soles of feet in hot water.

128½ Sponge back of **head** and forehead with cold water.

129 Head Bath, cold, 15 minutes, water renewed every four minutes, cold sponge on forehead.

130 Wash head in warm soap and water, then sponge with tepid water.

130½ Pour water over the head.

131 Head bath, 70 deg., eight minutes, quiet.

131½ Ditto, and foment eyes at same time with small pads out of 90 deg.

132 Head well rubbed with cold water and hand, well opening the hair.

133 Ditto, and hot mustard hand and foot bath, same time.

134 Put on a thick cotton nightcap, wrung out of cold water, then a thick flannel one over it, well covering the ears, and sleep in them and in wet and dry socks, and on rising sponge the head over with tepid water.

135 Six inches square foment pad, wrung out of hot water, on each side of the head, while lying down; wrap the head up well in dry flannel or piece of blanket, renew the hot pads every 15 minutes for one hour, then No. 134. Repeat all this twice a-day, or once in the day and at bed-time, or bed-time only.

136 Sniffing Bath, for affection of the nose or frontal sinus, stuffing in the head: take a flannel pad three thicknesses, the length and breadth of a hand, squeezed well out of hot water, and lay on forehead, then a cold wet bandage over it, and round the head; have a basin of cold water or tepid, put the nose in and sniff up the water until it returns through the mouth and spit it out the water cannot always be brought through the mouth on the first trial, but will be accomplished by a few attempts the application four or five minutes at a time, and three or four times per day, has cured bad discharge from nostrils and headache, and expelled decayed bone.

136½ Ditto, with tepid water.

137 Hot Mustard Leg bath to above calves, then wipe over with tepid towel and dry rub, rubbing upwards.

138 Ditto, to above the knees.

139 Leg Bath, 90 deg., or just comfortably warm, 30 minutes, for inflamed or sore legs.

140 **Steam Legs,** and No. 17.

141 Hot mustard towel pack thighs, legs, and feet as long as can be borne, then rub dry with a dry cloth, rubbing upwards.

141¼ Ditto, dry flannel bandages for three hours, then bandages wrung out of tepid.

142 **Wet Pack Legs** only, with usual thick cotton sheet, each leg separately, then blanket and mackintosh sheet one hour and a half, then sponge with 70 deg., then dry rubbing upwards.

143 Foment pack ditto, with hot pads, dry blanket, and mackintosh sheet, and sponge with water 70 deg.

144 Foment **Lower Part** of bowels, legs, and feet, with pads before and behind, one hour, and then rub with tepid wrung-out towel.

145 **For Leg Crisis,** when hot or irritable; first have leg bath tepid, just comfortably warm, not hot, for 20 minutes, keeping up the temperature by adding more warm water; then lie in bed, put a piece of mackintosh to prevent wetting it, and on that a piece of flannel, then dip cloths in water 70 deg. and lay them loosely round the limb, then a single piece of flannel loose over the wet cloths; keep renewing the wet cloths as they become hot, go on repeating them till irritation and heat are gone; this is applied in the last stage of crisis, and when the discharge has nearly ceased. This especially for crisis when hot and irritable; but if crisis becomes dark coloured, stop and foment, and re-pack with usual wet bandage, flannel, and mackintosh, until the part is red.

146 Sponge legs if matter on gently, with hot soap and water during 145.

147 **Evaporation** for any part under painful crisis, apply on the bed as 145, but use cloths squeezed out of hot water.

147½ After the above operation has removed all matter, and the skin only remains tender, apply silk stockings in the following manner:—After putting the stocking on, then slightly sponge it with sponge squeezed out of tepid water, then merino or lamb's wool stocking over the silk or strips of flannel. The silk stocking must not be removed until the skin is sound; but whenever leg is uncomfortable, damp the silk. This plan hastens the formation of good skin by preserving it from the air and from being rubbed.

148 **Immerse** the part affected in water 90 deg. frequently, and gradually, as the inflammation subsides, lower the temperature till cold can be used with comfort.

149 **Rub Weak** part with the hand and cold water three or four minutes, while the part near is kept warm either with hot pads or hot mustard and water.

150 Ditto, rubbing with **Hot Mustard** and water.

150½ Immerse the part affected in hot soap-suds one hour and a half, then dress as 151.

151 To **Dress Boils**, three or four folds of linen lint, size of the place, wetted with hot water, then piece of spongio wetted, larger than covers the place, bandaged on with strips of linen or calico; the lint and spongio must be re-wetted often; the cooler the place is kept the sooner it will heal. See also page 506, crisis poultice.

152 An **Enema** of warm soap and water.

152½ Ditto, cold.

153 **Mustard Plaister** to soles of feet, one and a half inch broad, and dry socks to sleep in.

153¼ Mustard plaister to affected part till red, and then apply dry spongio.

153½ Hot brick to feet with wet mustard cloth over brick.

154 **Foot Bath,** stamping in cold water four minutes, water only covering toes.

155 **Hot Foot** bath, four minutes, then stamp in cold four minutes.

156 **Hands** and **Feet** in hot mustard and water several minutes, only covering feet, then dash in cold water and rub dry.

157 **Foot and Hand Bath,** 90 deg., mustard and water, well rubbing them whilst in, or well moving them, four to six minutes, then rub with tepid towel and dry hands.

158 Have **Hands** and feet rubbed with cold water and hand, for three or four minutes, or till quite warm.

159 **Soles of Feet** in hot mustard and water, whilst legs and thighs are well dry rubbed upwards with dry hands, dash the feet in cold water after taking them out of the hot.

160 Ditto, ditto, rub with dry mustard.

161 Ditto, rubbing with mustard and cold water, putting hot pads to thighs.

161½ Ditto, with hot mustard.

162 **Palms** of hands in hot mustard and water, and hot pad to shoulders, and rub the arms, as above.

163 Body bandage silk and calico, or mackintosh and calico; calico part wrung out of cold water, and renewed every three hours, worn all day.

163¼ Ditto, wet only the part over bowels.

163½ Ditto, in night only.

163¾ Only every other day.

164 Ditto, as 163, worn from **Rising** to **Noon,** and from four o'clock to bed-time, and when bandage taken off, replace with single dry flannel bandage.

165 As 163, worn night and day.

166 Body bandage, **Silk** and **Flannel** damped, worn all day.

167 Ditto, from **Rising until Noon,** and from four o'clock until bed-time.

168 Ditto, night and day.

169 Spongio body bandage and flannel all day, spongio part to cover the bowels, and sprinkled or sponged with tepid water, but not too wet, or it will drip and be uncomfortable.

169½ Ditto, **from Rising to Noon,** and from four to bed-time, re-placing it with single dry flannel bandage.

170 Ditto, night and day.

171 **Dry Flannel** body bandage, all day.

172 Ditto, over night dress.

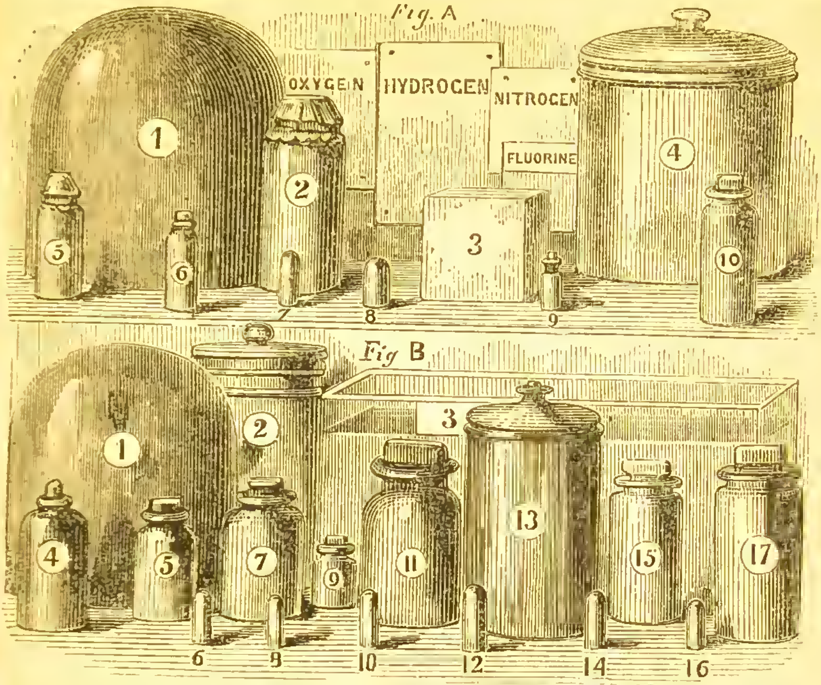
173 Body bandage, calico only, and wet as much as will go round the body, and dry flannel over.

173½ **Crisis Bandage,** four thicknesses of jaconet calico, rubbed till soft, wrung out of tepid water, put round the body, and a single dry flannel bandage over, washed and renewed every two or three hours, washing the crisis part every time gently with warm soap and water, but not to rub the parts: if any discharge, a second bandage should be ready, to have one always well washed and ventilated: this will soon clear any crisis.

173¾ Crisis bandage for legs when the mackintosh is left off: two thicknesses of crisis calico bandage, wrung out of tepid water, and kept damp by sponging carefully without removing oftener than once in 24 hours, when not much discharge, flannel bandage over.

174 **Piece** of **Spongio** damp to **Stomach,** and worn night and day, with single dry flannel bandage over.
175 Ditto, on liver.
176 Ditto, on heart.
177 **Half Chest Compress,** silk and flannel with collar, night and day, sprinkled with tepid water, morning, noon, and night.
178 Ditto, **Spongio.**
179 Chest compress, **Full Size,** silk and flannel.
180 Ditto, ditto, **Spongio.**
181 Half chest, **Calico,** silk and flannel.
182 Full size, ditto.
183 **Half Chest** compress, double **Calico,** one thickness wrung out of water.
184 Full size ditto.
184¼ Dry flannel, half chest compress with collar.
184½ Without collar.
185 Spongio jacket complete, with short sleeves tied in front.
185½ Ditto, oiled silk and calico fastened at the back.
186 Spinal **Compress,** silk and FLANNEL.
187 Ditto, silk and CALICO.
188 Ditto, SPONGIO.
189 Dry FLANNEL and silk.
190 Spongio at top, and flannel below.
191 Ditto, spongio below only, flannel at top.
192 **Wet Silk Gloves,** worn constantly wet, and wetted by putting the hands into tepid water without taking them off: this will take off all heat of hands, or heal rough sore hands.
193 Cotton gloves wrung out of tepid, and woollen over, worn day and night.
193½ In night only.
194 **Cotton Socks** wrung out of cold water, and dry woollen over, to sleep in; feet in 95 deg. four minutes first.
195 Ditto, wetting only the soles of the cotton socks.
195½ Sciatica leg case.
196 Respirator (page 58) on going out in cold or high wind.
197 Sleep in respirator.
198 Short **Jacket** of merino or flannel, with short sleeves and collar, to sleep in, and handkerchief round the throat, for delicate chests or bronchial affection.
198½ Complete hosiery, merino, or lambs' wool dress to sleep in.
199 **Galvanism.**
200 Ling's and other **Movement** exercises.
200½ Special ditto.
201 **Eye Glasses,** use 70 deg. water five minutes.
202 Ditto, cold three minutes.
203 Ditto, 90 deg. three, and cold two minutes.
204 Steep forehead, face, and nose in cold water one minute.
205 Ditto, hot one minute, then cold one minute.
206 **Sip Four to Five Tumblers** of water per day.
206½ Cold ginger tea.
207 Tea-spoonful of **Cod Liver Oil** immediately after breakfast and after tea.
207½ One tea-spoonful at bed-time.
208 **No Flesh Meat,** only gravy, and a little vegetable or rice, and the usual puddings.
209 **No Vegetables,** only boiled rice and cold meat, or plain sausage, no puddings.
210 **Very Little** flesh meat, no beef or pork.
210½ Plain mutton, veal, or beef sausage, three parts bread without seasoning, and not in skins.
211 **Liver** complaints, very moderate of cold lean mutton, cold chicken or cold game, with bread and cold water to breakfast, dinner, and tea.
212 Cup of weak black tea before rising treatment, a cup of beef-tea with a little toast before forenoon treatment.
213 A little arrow-root or sago at half-past eight p.m.
214 Bandaging limbs, first strips of calico, wrung out of water tepid or cold, then strips of mackintosh or oiled silk, then plenty of flannel strips over all.
215 Wet double calico skull cap frequently renewed out of cold water, worn all day.
216 Present time treatment—if wearing compresses have them dry, then on third night two minutes, 65 to 70 deg., quiet sitz in running sitz, and damp the compresses in warm water. Fourth day, morning, noon, afternoon, and night, two minutes, 65 to 70 deg. sitz as above. Fifth day, a two minutes' cold sitz as above every two hours till well. If fifth day unsuccessful, then undress and dash into an ordinary sitz with cold water in, and out immediately, then lay on bed, wrapt in blanket, and have towel rubbing over lower part of bowels and back for two minutes, repeated twice per day, and keep quiet.
217 Ditto, not under 70 deg.
218 Ice cream.
219 Iced water.
220 Crisis poultice. — See p. 506.
221 Fever pack.—See p. 44.
222 Soap blanket, p. 404.
223 Local steaming, p. 409.

TURKISH OR SWEATING BATHS.—We have one for ladies, one for gentlemen. In each three rooms, ten feet square, ten feet high. First room, for sponging after sweating; window, one-half to swing, to admit air freely; floor covered with zinc, returned up sides one foot; on this, wood laths to allow water to go off freely. Second room, divided into six partitions—three each side for dressing, with clean calico aprons for bathers. Third room—zinc flooring with laths, as in first room; seated round three sides; round three sides of the room 330 feet of three-inch bore steam-pipe, put upright against the wall, boarded next the seat. Best to lay down on a blanket, and thick cotton sheet over it; the head supported on a frame covered with web; clean sheet for every bather; cold air-flue under seat; good ventilation in ceiling; window two feet square, closed, double glazed; cold water to sponge head and to wet head bandages: door half glass, for bath attendant to watch bathers, to supply wants, cold drinking water, &c. After sweating in from 120 to 140 degrees, frequently sponging head with cold. Before coming out, sponging over with hot soap and water, then bather comes into first room—there is first sponged with hot water, then with cold; some cases tepid; is rubbed dry in the dressing-room, retires to the saloons, uses 77 on list.



Composition of the Human Body.—The cut, as above, is taken from a glass case in the South Kensington Museum, London.

Figure A.

Ultimate elements of a human being weighing 154 pounds.

	lbs.	oz.	grs.
1. Carbon . .	21	2	—
2. Phosphorus .	1	12	190
3. Calcium . .	2	—	—
4. Chlorine . .	—	2	47
5. Sodium . .	—	2	116
6. Potassium . .	—	—	290
7. Silicon . .	—	—	2
8. Magnesium .	—	—	12
9. Iron . . .	—	—	100
10. Sulphur . .	—	2	219

Oxygen gas, the quantity in a body weighing 154lbs., is 111lbs., which would occupy 750 cubic feet of space. (p. 389.)

Hydrogen gas the quantity in a body weighing 154lbs. is 14lbs., which would occupy about 3000 cubic feet of space.

Nitrogen gas, the quantity in a body of the above weight is 3½lbs., and would occupy about 20 cubic feet.

Fluorine, the quantity in a body of the above weight is 2ozs.

Figure B.

Proximate principles of a human being weighing 154 pounds.

	lbs.	oz.	grs.
1. Gelatine . .	15	—	—
2. Fat . . .	12	—	—
3. Water . .	111	—	—
4. Sulphate of Soda	—	1	170
5. Carbonate of Soda	—	1	72
6. Chloride of Potassium		—	10
7. Chloride of Sodium (common salt)	—	3	374
8. Phosphate of Potash	—	—	100
9. Fluoride of Calcium	—	3	—
10. Peroxide of Iron	—	—	150
11. Fibrin . .	4	4	—
12. Phosphate of Magnesium . .	—	—	75
13. Albumen . .	4	3	—
14. Phosphate of Soda	—	—	400
15. Carbonate of Lime	1	—	—
16. Sulphate of Potash	—	—	400
17. Phosphate of Lime	5	13	—
18. Silica . .	—	—	3

My eye, accidentally, at the time of making the above ready for insertion, fell on the following, in the Star newspaper, July 4, 1859, and is a striking commentary on the vanity of the poor soul when inhabiting the mass of carbon, phosphorus, fat, gelatine, &c. &c.

THE HON. MRS. ANSON'S JEWELS.—The valuable casket of jewels, formerly belonging to the Hon. Mrs. Anson, deceased, removed from her late residence in Charles-street, Berkeley-square, was, by order of the executors, disposed of yesterday by Messrs. Christie and Manson, at their great room in King-street, St. James's-square. The principal contents of the casket were as follows:—A bandeau, formed of thirteen collets of fine large sapphires, set round with brilliants,—105*l.* (James.) Two pairs of branches of flowers, each formed of fine brilliants, 300*l.* (Curzon.) A magnificent necklace, formed of twenty-four large emeralds, set round with brilliants, and 11 pendants of emeralds, set round with brilliants, the centre drop a polished emerald, with brilliant cap—700*l.* (Morgan.) A pair of polished emerald drops, with brilliant caps—160*l.* (Curzon.) A pair of wheat-ear brooches or head ornaments of fine brilliants, a centre piece of brilliants for a head ornament, and a brilliant brooch, with pendant—115*l.* 10s. A beautiful necklace, formed of 112 fine pearls, and 14 polished emerald beads, two oval polished emeralds at the ends, and two others in tassels, with small pearls—350*l.* (Curzon.) A bracelet, or head ornament, of gold and enamel, set with polished emeralds and pearls, and with emerald pendant, a necklace, of gold and enamel, with large pendant turquoises and small pearls; and another necklace, of gold; with large centre turquoise, and 30 small turquoises pendant—169*l.* Five pairs of earrings, each with turquoises, pearls, and rubies, and two pieces of gold chain with 16 turquoises—78*l.* 11s. A necklace, of gold and enamel, with pendant turquoises and pearls, and 11 polished turquoises, with gold chain for bandeau—79*l.* A gold chain bracelet, with fine large emerald snap—113*l.* A gold chain, with ten very large turquoises—105*l.* A gold chain negligée, with 49 large polished turquoises—155*l.* Two Indian bracelets of gold, set with cask diamonds, with fine gold chain, and a bracelet, of gold, chased and enamelled with birds and flowers, in colours—103*l.* 10s. A diamond spray of extraordinary brilliancy—202*l.* (Martin.) An Indian incense-burner, of silver, enamelled with birds and flowers in colours, and set with large cask diamonds and two small gold chains, with turquoises—54*l.* 10s. A beautiful snuff-box, of matrix of amethyst, with flowers in relief in colours on the lid, set with four emeralds, four yellow and other fine brilliants—100*l.* The whole produced nearly 3000*l.*; to decorate more gas, fat, &c.

GOOD LIVING.—An eminent physician at a fashionable watering-place, puzzled with a case he could not cure with his physic, orders port wine, good living, and the wet sheet; but this also proving a failure, application is made to us; the subject is a married lady. "The last medical gentleman she was under was Dr. H——, of L——, who did her much good. But about Christmas last, said medicine in her present state would be useless. I believe Dr. H—— exerted his utmost skill in her case; during some of his treatment, he used the wet sheets to her partial advantage. I have used the word 'partial,' because they did not altogether answer the Doctor's expectations. I am sorry to say the port wine is giving way in its effects, and that some further steps must be soon taken to keep her from sinking."!!

LOOK AT HOME.—STARVATION.—*To the Editor of the "Star."*—SIR, All honour and many thanks to you for your leader on starvation and the workhouse system. The cases of destitution and starvation detailed in your paper of Saturday are truly harrowing, and I rejoice that they have been thus brought prominently under the notice of the public. These cases are, however, as it were, only a drop in the bucket. Now and then cases similar meet the eye through the columns of the newspapers; but the public in general can form no idea whatever of the distress and starvation existing at the east-end of London. The harshness and positive brutality which our honest and deserving poor meet with when they are literally forced to seek assistance from the workhouse is beyond description, and we cannot wonder at the detestation they exhibit at the very name of workhouse. Poor unfortunate fallen women whom I have conversed with, and whom I have endeavoured to get off the streets, have said to me when I have mentioned the workhouse as a place of temporary refuge until arrangements could be made to get them back to their friends, "No, I will rather lie in the gutter and rot than put up with the treatment I shall receive there." I simply ask—should this be so in a Christian land?

I will not repeat here what I stated in my letter which you kindly inserted on Saturday, about the dreadful starvation among the children we deal with, but give you a case in point, illustrating the workhouse system. Last Sunday morning, upon entering our room in George-yard, our kind superintendent called my attention to two little boys (one a mere infant scarce yet able to speak). "Mr. Lewis" said he, "here are two little things who have not broken their fasts, not even tasted a single crumb of anything since Friday. They are so exhausted I hardly know what to give them." Some hot coffee and bread were procured and administered to them with care. Now for the part the workhouse plays in this. The children's parents I know, and can vouch for their sobriety, good character, &c., and for them being truly deserving people. Want of work for a long time, weakness, and affliction, have so reduced them that they have hardly a thing left. On the Thursday or Friday previous to the above, the father was promised some work on the following Tuesday, and in the meantime applied to a workhouse for something—only some bread—to help him over the few days intervening. Not a bit would they give him; not a bit did he get, "If you want anything, you must bring your wife and children, and come into the house." Such was the verdict: with it the poor heart-broken father went home empty to meet his little ones, crying around him for food. This needs no comment from me. I ask your Christian readers to apply it, and enlarge upon it in their own hearts. I will only remark that these children attend the Sabbath school, the parents our religious services, and that the family pray in all sincerity night and morning in our Saviour's words, "Give us this day our daily bread."—I am, sir, yours respectfully.—William Joseph Lewis, 5, Old Norfolk-street, New-road, Mile-end. *Nov. 7, 1859.*

Crisis Treatment M., for the legs.—After the discharge has been freely out, and the macintosh bandages left off, which must be done when sufficient crisis action has been accomplished, and free suppuration has taken place, then immerse the legs in soap lather in a leg bath, 90 degrees, five minutes; then take them out, and put the feet into a foot bath, with a little hot water to cover feet, and squeeze some warm water over the legs from a sponge, 90 degrees, not hotter, to wash away the soap lather, and any discharge; do this quickly, and if in cold weather, before a fire, to prevent chill to the legs; then put on dry leggings made of crisis calico—that is, fine calico rubbed soft; over these put loose dry flannel leggings; then put on narrow mustard plaisters on soles of feet only, one inch broad, and bound over with dry flannel; then lay on sofa with hot foot bath near the feet, not too hot to be uncomfortable, only to keep the feet warm; this process only to be repeated as often as the legs are uncomfortable, but not oftener, as the skin must have time to form, and if too often disturbed, will not heal so soon. When the operation is repeated, take the flannel leggings off, and the foot covering, and steep the legs in the soap lather, with the calico leggings on, and slip them off in the water; this is to prevent the new skin being disturbed by taking the calico off while adhering to the legs. After the leg bath application of 90 degrees water, put on fresh dry calico leggings, and go on as before; apply No. 147 in the night, the former plan is better for the day. No general treatment but sponging the body over, except the legs, with 90 water in the morning, and again during the day, if feverish, without disturbing the leg coverings 192 to hand. 215; as much fresh air as possible—close room very much against recovery; no flesh meat; 218 good; a small quantity of food only, and not regard apparent lowness and loss of appetite, such crisis is always and inevitably beneficial. The morbid matter being brought out from the interior of the tissues on to the surface removes all danger of fever, paralysis, or any inflammatory or other dangerous maladies. This treatment must be continued until new skin is formed and all inflammation has subsided.

Ventilation of bedrooms.—Too much importance cannot be attached to the ventilation of both day and night rooms, but more especially the latter. In our experience of disease we see a very fruitful cause of the commencement of disease in confined bedrooms, and have often had our efforts in the day counteracted by the unhealthy influence of a badly ventilated room in the night. If one or two persons were shut up for nine hours in the day in the room they occupy in the night, and under the same circumstances of closed windows and door, and not moving out of the room, they would find it almost insupportable; nevertheless, asleep, they endure this every night, breathing the same vitiated air as if shut up in the day. No one can calculate the amount of disease and death from this cause; and it is the case in the majority of first-class houses, as well as in cottages, although in the latter, in a greater degree. In first-class houses, there is seldom provision made for ventilating the upper part of the room near the ceiling; and as to the grates in the chimney, high up, called ventilators, they do not carry away half the quantity of bad air accumulated, besides often not acting at all—because, unless there is a difference, and that pretty considerable, betwixt the inner and the outer atmosphere, there will be no draught—for as water finds its level, so will air find its level of temperature. I find perforated zinc on each side of the room, and as near the ceiling as can be got at, good, but as to bedrooms, it is our habit, in all states of the weather, to have the bedroom window open, and in a high and exposed situation, subject as I have been to bronchial attacks, I never find the open window injurious; even very delicate persons would be surprised what they could bear in this, not only without injury, but with benefit. There is in this country a most pernicious dread of night air in bedrooms: the pure air is shut out, the oxygen that gives life and heat to the blood is excluded, in a great degree, to the destruction often of the health. If any suffering from consumptive or bronchial affections would use a respirator in bed, with the window open, they would feel the benefit; only, in all cases do not have the window open upon the bed without a moreen or other good curtain to break the current of air; and as to beds surrounded with moreen or other curtains, they are highly objectionable. The houses of a class above the cottages, and the cottages, are almost universally without ventilation at all,— the upper sash often fast, and the lower one only opens—no ventilation in the ceiling or the door. I have had the upper three inches of my doors cut out and replaced with perforated zinc, and the windows also—the perforations break the current of air. The new bedrooms at my Hydropathic Establishment, in course of erection (October 1859), I intend to be models for both heating and ventilation: the floors all to be of burnt gypsum 2½ inches thick, laid on in a fluid state, and the outer walls all battened, with lath, and plaster. Fresh air is absolutely necessary to existence, and just as the body is deprived of it, so disease, and inability, and suffering comes on.

Lodging-house ventilation.—Mr. Deputy Harrison instanced the case of a house which he had visited, and which, let off in separate tenements, contained no fewer than eighty people—male and female, young and old—contending that in such a house, whether the lodgers were permanent or temporary, a little supervision could do no harm.—Mr. Ross said that, as a medical man, he had had very good opportunities of observing the manner in which the houses of the poor were filled in the city, and particularly in the ward of Farringdon Without. Among many cases of improper occupation he would mention one. He one day visited a woman who had been confined the night before, and who only occupied a single room. In that room, while the woman so recently confined was in bed, there were two men getting their breakfasts, one of whom he naturally concluded to be her husband, but upon inquiry he found that this was not the case, and that they were only lodgers, to whom the woman let off a portion of her room, and so paid her own rent. Repugnant as this was to every idea of decency and morality, it was, he regretted to say, only a too common occurrence; for it had come to his knowledge that poor people were in the habit of hiring a room for 2*s*. 6*d*. or 3*s*. 6*d*. a week, and of repaying themselves by letting it off, corner by corner, to others, as poor as themselves. Nay, sometimes even the middle of the room-floor was let as well as the corners. If these houses did not require supervision as common lodging-houses, he did not know where supervision could be demanded at all, and he hoped something would be done in the matter.—After some further conversation, the Chairman reminded the court that there was no question before him, and the matter dropped.

Case L. Gentleman, age 54, tall, good constitution, good habits; when about 30, had inflammation of the bowels, and took a great deal of calomel; bowels always weak since, and liver affected. Home, on rising, summer 83 five minutes, then 95, or 2 and 164; 172 in night. Noon, 83 five minutes, with or without 112. Bed-time, 92 once a week, once 98, other nights 83 five minutes; 46 at eight p.m., when stomach deranged; 51 occasionally; 130 twice per week; 128½ at morning bath, and also 13 twice or thrice per week; 13 and 10 at bed-time, if fatigued and 165. Diet as advised in this book.

Case N. Injured knee by a blow on board ship; aged 20. On rising, No 2, or 21·73½, or 16·73½, taking care injured limb is kept from cold water; forenoon, 143, and afternoon also; 61½ twice per week; other days, 2, or 112, feet in hot mustard, or 120, or 121, or 16; 163¼ in day, 172 over night dress, 153; 214, with plenty of flannel wrapper over knee, night and day. Crisis came on, the knee suppurated as it had done before, and, shortly, several pieces of decayed bone came out. Continued treatment until matter ceased running; then dress leg with crisis, calico, and flannel; then have 21·73½; on rising, 61½, once a week; forenoon and afternoon, 147, two hours each time, with 153; bedtime, 147, with some hot water by bedside to use in night when awake; soon as heat is subdued in knee and leg, put on silk stocking, and keep it damp with warm water, and put dry merino or other stocking over silk. This case was thoroughly cured.

Pouring on affected limbs, or No. 17 bath list, if on the knee, as follows; if on other parts, on the same plan:—Use the water 90 degrees and 70 degrees out of two large cans, pouring them alternately; place the foot in hot mustard and water in a small foot-bath, and that in a shallow-bath, then cover the foot-bath with a piece of mackintosh, so as to prevent the water that is poured from going into the foot-bath. Also place a hot fomenting pad all over the thigh. After pouring the alternate cans of 90 and 70 degrees for four or five minutes, then rub the affected part with hot mustard and water with the hand, for two minutes, gently; foot, wiped with tepid towel and dried with hand till warm; put on socks.

Tobacco.—The *Carlisle Examiner* reports at great length a lecture which the Dean of Carlisle delivered on Thursday night, the subject being tobacco—its influences, physical, moral, and religious. The large hall of the Athenæum was crowded. The Dean, in the course of his lecture, furnished the following curious statistics:—In 1856, thirty-three millions of pounds of tobacco were consumed here at an expense of eight millions of money; five million two hundred and twenty thousand pounds of which went in duty to Government, to say nothing of vast quantities smuggled into the country. There is a steady increase upon this consumption far exceeding the contemporaneous increase of population. In 1821 the average was 11.70 oz. per head per annum; in 1851 it had risen to 16.36 oz.; and in 1853 to 19 oz., or at least at the rate of one-fourth increase in ten years. We hear of 20,000 hogsheads of tobacco in the bonding houses in London at one time. There are twelve city brokers in London expressly devoted to tobacco sales; 90 manufacturers; 1569 tobacco shops in London; 82 clay pipe makers; 7380 workmen engaged in the different branches of the business; and no less than 252,048 tobacco-shops in the United Kingdom. And if we turn to the Continent the consumption and expenditure assume proportions perfectly gigantic. In France much more is consumed in proportion to the population than in England. The Emperor clears 100,000,000 of francs annually by the Government monopoly. At St. Omer 11,000 tons of clay are used in making 45,000,000 of tobacco-pipes. In the city of Hamburg 40,000 cigars are consumed daily, although the population is not much over 150,000; 10,000 persons, many of them women and children, are engaged in their manufacture; 150,000,000 of cigars are supplied annually; a printing-press is entirely occupied in printing labels for the boxes of cigars, &c.; and the business represents 4,000,000*l.*! In Denmark the annual consumption reaches the enormous average of 70 ounces per head of the whole population; and in Belgium even more—to 73 ounces, or 4 pounds and 3·5ths of a pound per head. In America the average is vastly higher. It is calculated that the entire world of smokers, snuffers, and chewers, consume 2,000,000 of tons of tobacco annually, or 4,480,000,000 of pounds weight—as much in tonnage as the corn consumed by 10,000,000 of Englishmen, and actually at a cost sufficient to pay for all the bread-corn eaten in Great Britain. Five million and a half of acres are occupied in its growth, chiefly cultivated by slave-labour, the product of which, at 2*d.* per pound, would yield £37,000,000. The time would fail to tell of the vast amount of smoking in Turkey and Persia. In India all classes and both sexes indulge in this practice; the Siamese both chew and smoke. In Burmah all ages practise it—children of three years old, and of both sexes. China equally contributes to the general mania; and the advocates of the habit boast that about one-fourth of the human race are their clients, or that there certainly are 100,000,000 of smokers! Are not these statistics perfectly astounding? Is not this a wanton waste of money upon an idle custom, admitted by its warmest advocates to be only a luxury—seldom beneficial—always dangerous? This financial view of the question ought to arrest our attention. Every working man who consumes only one ounce of "shag," "returns," or "bird's eye," per week, or the very moderate quantity of 4lbs. per annum, pays out of the fruit of his labours 12*s.* 8*d.* to the Government in the shape of a tax on his luxury! Let the working man look to this. The amount of money which they annually expend in beer, spirits, and tobacco, would place them all in easy and comfortable circumstances, and in a very few years obtain for them the franchise as electors much more quickly than friend Bright will get it for them. My friends, believe me, that if you would break your tobacco-pipes, and never again drink a drop of intoxicating drinks, you would rise in the world with a rapidity you little dream of. The doctor dwelt at great length on the moral and physical evils of tobacco, and after strongly appealing to his hearers, and especially to the ladies, to aid in its suppression, he concluded by expressing his belief that unless something stayed the tobacco plague in America, that nation never could be great. It was stunting their growth, and they felt it. He was happy to say that three-fourths of the ministers of religion in America were abstainers from tobacco in every shape, and used their influence against it.

SHORT HINTS WORTH NOTICING.—COLD WATER will never cure inflammation or congestion, but will increase them. VITAL HEAT must be brought to a congested or injured part before restoration and nutrition can go on; and this can only be accomplished by warm applications or mustard plaisters; cold water will do injury. NATURE WILL HAVE HER OWN TIME in curing; patients come to us to be cured in a month of maladies that have been years in accumulating mischief in their frames. When a person has a broken limb, they do not go to a doctor and say they must be cured in a fortnight—they know nature will have time to unite the bone, and then throw off in matter the injured tissue, &c.; but in disease, the patient so called is often very impatient, tries first one plan, then another, until the body is a wreck, and painful dissolution sets the fretful soul free from the body, to enter another state of existence. Weakly and ailing dyspeptics very generally keep up their ailments by eating too much. When the stomach or other nutritive organs are weak, it is a manifest absurdity to give them as much to do as when healthy and strong; a little well digested will keep up strength, when a little excess only deprives the stomach of power to digest at all. BAD TEETH are a fruitful source of stomach irritation and neuralgia; we have had patients whom for years have been suffering from indigestion and nervousness, simply from the irritation caused by decayed teeth, and when the teeth have been removed, their health has soon been restored. Delicate or consumptive persons will find a *gauze merino dress* or vest and pants very comfortable to sleep in without a night-gown; the merino keeps the skin dry and warm, and will often prevent perspiration.

CASE OF INJURED THUMB.—A gardener, aged 50, bruised his thumb, and went on with his work, thinking it would soon be well. In loading some gravel from the lead mines, got his thumb venomed, and after a day or two felt great pain, and swelling took place; he then applied to a surgeon, who ordered poultices and some pills; the hand began to be very painful, and the surgeon supposing there was matter forming near the bone, and the skin of the man's hand being hardened by his employment, that the matter could not escape, made an incision to the bone, but no matter came out, the inflammation and pain increasing. This went on for two months, the same surgeon telling the man his thumb would never be of any more service, and that the probability was it must be cut of; and, eventually, he might lose his hand. The man, in great pain, and fearing an operation, came to us; he had relief in two hours after coming into the hospital: all pain ceased, and he had none afterwards; the skin of his hand and arm, from his occupation, was hardened; no means had been used to make use of the thousand of pores in the skin to give relief; the only vent for morbid matter was through the injured thumb which had been poulticed; no attention had been paid to improve the general health, except by pills; the great outlet for impurities provided in the seven or eight millions of pores in the skin was not thought of; all the attention of the surgeon was directed to cure the thumb, without reference to the other parts of the body, which, of course, all sympathise with every part diseased.

The treatment was as follows:—the case went on well from the hour it was commenced, and the shapeless mass of inflamed matter, which the thumb appeared to be, on commencing, soon assumed a natural form; and from being quite stiff, in two days he was able to bend it without any pain. Treatment ordered:—This evening, put the hand and arm into hot soap-suds, for two hours, without rubbing or sponging it, and after wrap the hand in a flannel pad, wrung out of hot water, and plenty of dry flannel over to keep in the warmth; then the whole arm bandaged as No. 214, then No. 35½, keeping the arm in the bandages, and after put on 180; the whole nervous system being so shattered. Then had some tea, and went to bed, and slept well for the first time of five or six weeks, during which time he had scarcely slept an hour, and then in a disturbed state, holding his hand out of bed to ease the severe pain; the next eight days he had the following treatment:—on rising, 96, 97; forenoon, 108; afternoon, 128, and 123; once a week, 55. Attention to 77, 180, 208, 207. Treatment for hand:—Keep it in hot soap-suds, two hours, three times per day, and the intervening time, keep it wrapped in flannel pads, wrung out of hot water, and dry flannel over. Two pieces of decayed bone came out during the process; we let nature cast them out, and never interfered, even when the pieces of bone protruded: had we cut them out, inflammation would have again come on. Here it was striking to see what powerful efforts nature makes in restoration. The man is now at work.

Cramp in Legs.—Attend to 150 whilst preparing 138, or, if nothing at hand, for 138 use 137. and keep hot pads on knees and thighs at same time. For some days after an attack, apply 141, 143, 144, whichever most comfortable, and wrap the legs in dry flannel strips. The general state of health ought to be attended to, as cramp arises mostly from disordered stomach (see page 6 for home treatment). 35½ useful and safe.

Colic, Pains in the Stomach and Bowels.—Immediately apply 67; and if that does not speedily relieve, apply 98, well rubbing bowels while in it. After 98, use 76 or 77 until quite composed and comfortable, previously putting on 169 or 163¼, with flannel wrapper over; 48 next day advisable.

Earache.—Use 135, or lay first one ear, then the other, in head bath, with soap-suds, 95 degrees, five minutes; then apply the dressing, as in 151, to each ear; repeat either of these remedies as often as pain requires.

Neuralgia or Tic.—This disease is on the nerves, and where the most nests of nerves are, there the disease is principally felt, such as in the face and head, hips, thighs, and legs. Great attention should be paid to the teeth when it is in the face or head, and any decayed teeth removed; then attend to No. 70, and whilst applying it, apply also 135 and 153; but instead of putting on 134 after 135, well sponge the head and face with tepid water, and wear the flannel cap for a while. The numbers 122, 123, 126, 127, 137, 132, 216, will all be useful in addition to the above. Bad teeth have been the simple cause of tic of many years' standing; and in many cases we have had, the removal of the bad teeth has made a cure. In this and all nerve cases, fasting will accelerate cure, and taking a full quantity of food increase the disorder.

Convulsion in Children.—Immediately undress the child, wrap it in a blanket, put cold wet cloth round the head, feet in hot mustard water, rub bowels gently with dry warm hand, whilst bath No. 35½ is prepared. After No. 35½ bath put the child into No. 61, renewing the head bandage as soon as it is warm; on coming out of 61 put on 173. If mothers would be careful, when their children are not quite well, and put them into a wet pack (see page 218), they would prevent convulsions coming on; there must be much derangement of health before convulsions can arise.

Sore Heads in Children, from eruption.—On the least appearance of the eruption immediately attend to 130, and put on the child a linen cap squeezed out of tepid water, and a macintosh or oil-silk cap over that: be careful frequently to re-wet the linen cap, and at the same time wash it or have a change of caps. If the eruption is bad apply 150 twice per day, and give the child 45 twice per week, no flesh meat, coffee, or stimulants, and hair cut quite close.

Toe-nails grown in are often a cause of disease, not easily cured by the ordinary means used. We find them soon cured by steeping first in hot soap-suds twenty minutes; then cut the corner off the nail, and keep the end of the nail cut square. Put on a bit of wet linen and oil-silk while any inflammation.

Lings and other movements and exercises, and also galvanism, we find most important aids to the cure of disease and debility, and are in daily use at our Establishment.

Ovarian disease is of a nature that cannot be fully explained in this work. If in an early stage, it is curable; but not when advanced, except by surgical operation, which very rarely succeeds in saving life. Hydropathy, we consider, is the safest and most effectual.

Head and Nose will often be kept clear and healthy by drawing up cold or tepid water into the nose every morning on rising.

Hot Soap-suds Bath for bad legs, arms, or hips, or crises on trunk, or any part, for twenty minutes twice per day, is very safe and very effective, covering the part up after from the cold: it will heal wounds and bring vitality into diseased parts.

The following selections of bath numbers may be useful as a general guide to treatment; the separate printed lists may be had by application, per post, free. Nervousness.—The following treatment is intended for cases where there is no positive disease of the nutritive organs, but for the class of dyspeptics with overwrought energies of mind or body. Severe cold water is the rule for such cases at most Hydropathic Establishments; but it is never used without danger to the life of the patient, and never cures. Milder treatment is often resorted to when permanent mischief has been done by the other treatment. The following baths are calculated to avoid relaxing the frame, but at the same time gently stimulate; such cases generally have better appetite than powers of digestion, and often suffer from taking too much food. Warm clothing is indispensable to keep up the vitality of the surface of the body, and thereby relieve internal congestion. Gentle exercise in the open air is necessary. Avoid aperients, however constipated, but occasionally use enema of warm water, but not if action of bowels every few days. 1, 2, 8, 8½, 19, 95, 96, 10, 11, 13, 14, 18, 21, 24, 25, 28, 29, 30, 31, 35, 35, 36½, 38, 39, 41, 48, 51, 55, 60, 61¾, 63, 64, 70, 73, 73½, 75, 76, 77, 91, 93, 94. 216, 98, 100, 101, 102, 103, 106, 107, 108, 114, 115, 120, 122, 123, 124, 125, 127, 128, 131, 132, 133, 165, 171, 172, 176, 187, 189, 193, 195, 153, 154, 157, 158, 161, 162, 199, 200, 205, 206, 207, 209, 210, 210½, 212, 213, 215, 218.

Rheumatism, acute, is brought on by long-continued indigestion. The red tongue will have shown signs of inflammation of the mucous membrane lining of the digestive organs before the rheumatic pains are felt. In this stage there is inflammatory action, and the treatment must be with a view to stop it and draw the inflammation out to the surface of the body: this almost always develops itself in crisis (read from 243 to 246), and soon as the rash comes out relief is soon felt, followed by cure. For this purpose treatment producing greater reaction than in chronic rheumatism is best, such as hot baths, followed by cold and abstinence from flesh meat, all stimulants, tobacco, coffee, &c. Purgatives or blistering do certain mischief. 9, 96, 97, 17, 22, 25, 26½, 35½, 40, 41, 42½, 43, 44, 46, 47, 52, 55, 58, 60, 61. 61½. 61¾, 63, 70, 75, 76, 78, 93, 137, 138, 140, 143, 144, 149, 150, 153, 156, 160, 162, 165, 168, 170, 171, 177, 184½, 185, 185½, 186, 187, 188, 189, 193, 194, 195½, 198, 199, 200, 206, 207, 208, 214.

Chronic Rheumatism.—When the first stage of rheumatism (acute) has been allowed to go without remedies, the vital powers of the body become prostrated in a degree which without inflammatory action settles down into permanent stiffness, contraction, and pain on moving. The treatment is with a view to raise this prostrated state, by gentle soothing treatment, and not by strong cold and hot baths, which are so beneficial in the first stage of the complaint. 1, 2, 6, 8, 8½, 10, 11, 13, 17, 18, 20, 24, 25, 35, 35½, 36½, 37½, 46, 47, 51, 52, 53, 55, 57, 57½, 57¾, 58, 61½, 61¾, 69, 75, 76, 77, 78, 92, 96, 97, 106, 107, 108, 110, 112, 114, 118, 123, 124, 127, 128, 130½, 133, 140, 141, 141½, 142, 143, 144, 149, 150, 153, 155, 157, 159, 160, 161, 162, 163¼, 166, 167, 168, 169, 170, 171, 172, 184½, 188, 189, 193, 195 195½, 198, 199, 200, 206, 207, 208, 210½, 214.

Bronchial affections and diseases of the lungs are very generally owing to the changeableness of the English climate, accelerated by carelessness in dress and ventilation, and very much by the attempts at remedy in giving nourishing food, stimulants, and blistering, and tonic medicine. We have in these cases the greatest prostration of strength: the bronchial tubes being in a diseased state, prevent a due supply of oxygen to the blood, and hence the rapid loss of strength. There is always fever attending the disease, and any strong treatment or over-excitement by cold baths, or want of proper clothing, will inevitably bring on hectic fever, shown by the flushing in the face and rapid pulse. The great object is very gently to stimulate the nutritive organs, and avoid any strong reaction; the food should be plain, and avoid all heating matter, and to remember that it is not the quantity of food that will strengthen in these cases, but a small quantity proportioned to the greatly weakened powers of digestion; all wine, coffee, and other stimulants bad. 7, 9, 10, 13, 14, 19, 21, 22, 23, 26, 26½, 45, 50, 65, 68, 71, 72, 74, 77, 79, 81, 92, 216, 107, 108, 110, 128, 131, 132, 133, 153, 156, 157, 171, 177, 178, 179, 180, 184¼, 184½, 185, 185½, 186, 193, 195, 196, 197, 198, 199, 200, 206, 207, 208, 212, 213, 214, 218, 219. Cooling drink, new milk, jelly.

Heart Disease.—The following are the most generally suitable baths. Heart irritation comes on from stomach complaints, female stoppage, and from general nervousness, but these baths are safe for all. Heart disease is rare. Many are unnecessarily alarmed at palpitation, which is a common result of nervous debility, without any disease of the heart. The object to be aimed at in cure or relief is by soothing the nervous system, and especially causing stronger circulation in the lower parts of the body, and also in the arms, and promoting healthy action of the stomach and bowels by gentle natural means only. 9, 13, 14, 26, 26½, 43, 44, 45, 50, 76. 77, 92, 94, 96, 97, 104, 112, 113, 114, 115, 128, 128½, 132, 133, 137, 138, 140, 141, 141½, 142, 143, 144, 153, 156, 157, 159, 160, 161, 171, 172, 176, 195, 199, 200, 206, 208, 212, 213, 215, 216.

Dropsy.—General baths. The object to be aimed at is to produce perspiration without injuring the digestive powers, keeping the skin warm and active: 6, 9, 13, 14, 22, 24, 41, 47, 48, 52, 61, 61½, 61¾, 63, 69, 72, 73½, 76, 77, 78, 93, 98, 132, 133, 137, 138, 140, 141, 141½, 142, 143, 144, 150, 153, 156, 161, 162, 163 163¼, 165, 168, 169, 172, 175, 176, 178, 180, 193, 194, 195, 200, 206, 207, 209, 210½, 214, 215.

Diseases of the Womb, and weakness of the parts in connexion with it, are often brought on by pretended curative applications; very serious and sometimes fatal consequences ensue through the unnatural applications of caustic, leeches, alum injections, and the use of the stethescope, which always causes injurious irritation. Regular attention to sitz baths, and especially to No. 216, would effectually prevent in most of the cases any disease occurring; but when there is derangement of this organ, attention to the mild treatment here laid down will be found efficacious, and in the generality of cases nothing beyond will be needed. 2, 6, 21, 29, 43, 44, 50, 51, 55, 69, 92, 94, 96, 97, 104, 107, 108, 109, 110, 119, 119½, 121, 123, 126, 131, 132, 133, 141, 142, 143, 144, 152, 153, 157, 158, 159, 160, 161, 168, 170, 191, 207, 216, 217.

Liver Diseases.—The liver being the principal purifier of the body, as well as having an important office for enriching the blood, any derangement becomes of serious consequence. Pain or uncomfortable feeling under the right ribs, or in the back, betwixt the shoulders, yellowness of the skin, especially in the white of the eye, and strong fur back part of the tongue, are all symptoms of deranged liver. If these first symptoms are not attended to and remedied, the liver becomes hardened, and no cure is possible. The treatment must be with a view to restore the vital power of the organic nerves of the liver, and all simply cold treatment will only further congest the already congested organ. Rest from all excitement or great fatigue, mental or bodily, is necessary for recovery. Calomel and all purgatives will only reduce the vital power, and all stimulants further congest it. Care must be taken not to take many hot baths for the body, but hot treatment must be applied locally, and much to the lower extremities; warm clothing is indispensable. These baths, without reducing the strength, will stimulate circulation and action of the deranged organ: 2, 6, 8, 9, 10, 13, 14, 15, 19, 20, 22, 24, 25, 33, 35, 35½, 46, 47, 48, 49, 52, 55, 57, 61, 61½, 61¾, 67, 69, 144, 75, 76, 77, 93. 94, 95, 96, 97, 98, 108, 122, 127, 130, 137. 138, 141, 141½, 143, 153, 156, 160, 163, 163¾. 165, 168, 170, 175, 190, 194, 199, 200, 206. 211, 215, 216, 218.

Oxygen, common Colds, and Respirators.—We find the use of Maw's respirators of very essential benefit, not only in cases of bronchial and lung complaints, but also in all cases of debility, and even in healthy persons exposed to cold. Their use during the night, we often see, greatly relieve the throat and lungs, and never debilitate, however much used. I can speak personally to the benefit of using one in winter whenever I go out, although I am in perfect health and free from chest affections or any disease; and the cause of the benefit will be explained in the following quotation from Dr. Joel Shew, there showing that the respirator, by modifying the cold received into the lungs, acts as a preventative of too great stimulus; it has only to be tried to prove the soundness of this theory. "A satisfactory explanation of the essential nature or proximate cause of a *common cold* has never been given. Liebig's theory of a mutual and equal resistance between the vital force and destructive force of oxygen explains it clearly. What are the symptoms of an ordinary cold? Defluxion from the nose—sore-throat—hoarseness—cough—sneezing—and a sense of soreness over the whole surface of the body. What are the parts affected by these symptoms? The Schneiderian membrane lining the nose—the parts of the throat near the root of the tongue—the air-passages leading to the lungs—and the skin. Why are these parts, in especial, first affected, when a man has taken cold, in preference to others? Because these are the parts of the body with which the oxygen of the air must necessarily come in contact before it can possibly enter the body so as to reach the internal organs. It happens thus: a continued stream of cold air, or continued exposure to wet, *while the body is inactive*—or excessive fatigue, or any other *debilitating cause*—first lowers the tone and diminishes the resistance of the vital force throughout the whole body, thus giving a preponderance to the action of oxygen over the resistance offered by the vital force. And as the oxygen must first come in contact with the skin, nostrils, throat, and air-passages leading to the lungs, before it can reach the internal organs (these being the inlets by which alone it can gain admission within the citadel), are, therefore, precisely the parts on which, if Liebig's theory be true, its destructive agency *ought* first to be exerted; and these *are* the parts on which it *is* first exerted—and inflammation of these parts *ought* to be the first manifestation of an undue intensity in the action of oxygen; and inflammation of these parts *is* the first manifestation of that undue intensity. If the effect of the debilitating causes in lessening the resistance of the vital force have not been very great, then the vis medicatrix naturæ, or restorative principle, will restore the equilibrium between the resisting energy of the vital force and the destructive influence of oxygen, and thus remedy the mischief in a few days. But if the vital force have been greatly depressed, then the destructive agency of oxygen will be further manifested in the more internal organs, and fever, rheumatism, or inflammation of some deep-seated organ will be the consequence, before the restorative principle has had time to perform its task of restoring the equilibrium. Nothing can more clearly illustrate Liebig's theory of disease than the phenomena of a common cold."

Pudding very nourishing and light. Duryea's Maizena. To be had at the grocers'. Eight quarts of milk to one pound of maize. Put seven quarts of the milk over the fire; boil with two or three laurel leaves in, to flavour; mix the maize with the remaining quart of cold milk in a separate basin; add a little salt, one pound and a half of powdered lump sugar, half an ounce of butter, and eight eggs; when the milk boils put in the other quart of mixture, and when thoroughly mixed pour into moulds, and in half an hour it will be set and ready for use.

Beef-steaks or Cutlets.—The only way to have them tender. Put the meat in a tin pan, and put in water just to cover them; put in a slow oven for four hours, then add flavouring, if desired, to the gravy.

Case Y.—Gentleman, aged 40; injured arm ten years ago; after being apparently well, still weaker than the other. Going through some severe hardships, the place became inflamed and broke out; after some time some decayed bone came away, and then healed, but whenever any pressure on arm it became painful and weak; general health good. Treatment first fortnight: On rising 95, keeping cold from arm. Second morning, 13, 130, 95. Third as first. Forenoon, first day, arm in hot soap-suds an hour and a half, then dress the sore as 151, and put a piece of sponge over and quite round that part of the arm, damped, flannel over the rest of arm; apply 214, including hand; the 214 must only be removed every forenoon, but the 151 must be attended to morning, noon, and night, and, every time, the discharge gently washed away; after the arm dressing have 111 three minutes, 16, 24, and afternoon, 83 five minutes, and 159. If arm does not keep up a good reaction, have hot foment pack to it one hour, and then crisis poultice as below; 61½ once per week. Returned home cured.

Crisis Poultices.—Make of white bread, and put in a thin soft calico bag; applied to any part that requires vitality to bring out crisis, will be found very efficacious; two bags are required to change, and the poultice is best steamed and applied to the part with spongio-piline over, and flannel wrapper, and if no spongio, oil-silk, or macintosh kept on night and day, renewed when the heat is down.

Case Z.—Gentleman, aged 28; rather long-standing affection of the lungs; a good deal reduced, with much expectoration. On rising 71, and then put on 180 dry on chest, and only damp it over stomach, then 114 in bed (13 and 14 once a week, breakfast in bed). Forenoon 141, with hot brick in cloth, to feet. Afternoon 71, 158, whilst lying in 77; when any pain in chest, have 23, 195, 177 behind, and 207.

Mustard for foot-baths, &c., may be bought of Mr. Ainsley, Mustard Mills, Durham, at 8s. per cwt.; stronger than best mustard.

Mythylated Spirits of Wine for lamp-baths, and sweating, may be bought at 4s. 6d. per gallon, of the chemist, 60 over proof; does not give out any effluvia, and may be used also in Etnas to heat tea or cocoa for invalids.

Probabilities of Marriage at given ages for all conditions of life, computed from the Registrar-General's Report for 1857:—

Ages.		Bachelors.		Spinsters.	Widowers.		Widows.
20	..	10 to 19	..	10 to 18	10 to 387	..	10 to 194
25	..	1 to 3	..	1 to 5	1 to 9	..	1 to 6
30	..	1 to 10	..	1 to 15	1 to 7	..	1 to 5
35	..	1 to 27	..	1 to 35	1 to 6	..	1 to 6
40	..	1 to 64	..	1 to 73	1 to 6	..	1 to 6
45	..	1 to 155	..	1 to 169	1 to 8	..	1 to 9
50	..	1 to 346	..	1 to 442	1 to 10	..	1 to 14
55	..	1 to 826	..	1 to 1298	1 to 15	..	1 to 28
60	..	1 to 2820	..	1 to 4283	1 to 22	..	1 to 47

Free Hospital Testimonial.—Mr. Smedley. Dear Sir,—It is not in my power to explain my thankfulness for your kindness towards me and my deceased husband, and his thankfulness to the last moment of his life. He much regretted that he could not die with you, having received the first impressions for good to his soul at the Hospital; and which I am happy to say he never lost sight of, and I have much comfort in saying that he died quite happy; and with my sincere thanks, I am yours, J. B

Testimonial, Free Hospital.—Mr. Smedley. Dear Sir,—It is now a long time since I wrote to you, but I have not forgotten the great kindness you showed me in the Free Hospital, by benefiting my bodily health, and also in a great measure being instrumental, under God, for the conversion of my soul.

Never shall I forget the good advice you gave us on Sunday mornings in the hospital. I can now praise God for guiding my steps to you, and pray for you, and for myself also, and with that comfortable assurance that God hears and answers my prayers, and blesses my soul. I can assure you, it is my earnest desire to become a valiant soldier of the Cross, to work, and think, and speak for Christ, who has done so much for me. I am, yours sincerely, F. W. . . . . . .

B. . . . Vicarage. Dear Sir,—Although I have not the happiness of being personally acquainted with you, yet having been presented with one of your books, 2s. 6d., and having adopted many of your excellent suggestions, from which, with God's blessing, I have derived great benefit, I take the liberty of writing to you to know your terms, as I am anxious to spend three months with you. I have suffered from constipation and from a torpid liver for upwards of ten years, taking medicine almost daily, generally calomel or blue pill; but since I adopted your suggestions, and the home treatment, which has been for the last eight weeks, I have taken calomel but *once*, and very little of other medicine. I therefore feel grateful indeed to you, and I think a residence of a few months at your Establishment would, with God's blessing, be most beneficial. I am, dear sir, yours very truly, . . .

Case.—A man, stricture, and stoppage of urine. You want a sitz bath, macintosh sheet, sitz bath blanket, sponge, two silk and calico body bandages, No. 163; two ditto, No. 169 (see page vi, Home treatment); two fomenting pads, and one fomenting can—all or any of these we can send you if you wish; stewed apples, as in my book, good for you, with milk; use No. 115 at first, for three or four minutes, then longer, twice a day, in your bed-room, with a fire in this cold weather; 69 or 70 when retention of urine; pads low down abdomen, and also 115; use 169, or 163¼ night and day, with 172 over, in night. 98 once or twice per week, at bed-time, if retention of urine; if not, use 115 two or three minutes; 96 every morning, on rising, with sponge full of cold over shoulders and spine; 157 every night, and bed-time, with dry socks to sleep in. No tea, or coffee, or any stimulants; cocoa from nibs, or milk best. The less flesh meat the better; be very careful of being exposed to cold this severe weather, and use cane-bottom chairs or wood; 157 once in the day, or 159, good. Shall gladly give you further directions; no purgatives or diuretics under any circumstances.

Liver congested and Injury to Left Side. Case X.—Gentleman, age 58, rather stout, of bilious temperament; taken stimulants moderately, smoked tobacco freely, resided in a warm climate. Two years since had an injury of left side from a fall, now congested liver, with dragging pains all round chest; low spirits, and much debility; has been in England twenty months, sparing no expense in having the most eminent medical advice, but constantly becoming worse. The case Y, page 506, going on so well at our Establishment, and coming from the same colony, advised his friend to join him, which he did, and has now been under treatment three weeks, decidedly improving; already got crisis out of the left leg, complexion clearer, and the dragging sensation nearly gone. This case will take time, but have no doubt of ultimate recovery. None of his medical advisers had forbidden tobacco or stimulants, which he used up to the time of entering our Establishment, and which were, of course, at once prohibited. Treatment to commence with in January: nothing on rising; forenoon, No. 64 with No. 44, sheet wrung out of hot mustard-water, leaving arms out; then foment pads behind and before, as 64, but pads as hot as can be borne, and after one fold of blanket, put on hot can, and cover up; have also same time No. 141; and when cannot bear 141 comfortably, have legs and feet wrapped in dry blanket, and hot foot bottle to feet, and 153. This for twenty-five or thirty minutes; if not oppressive, longer. After this, have good rub all over with warm dry sheet *quick*, keeping feet warm, dress, and recline on sofa; pack legs as 214, and put on sciatica leg cases silk and flannel night and day, until good crisis; then use damp crisis calico, with dry flannel bandages over, and the sciatica leg cases constantly, with 153 every night, and wear easy warm cloth boots; not to stop to shave or wash at any bathing operations, and to have fire or steam in bed-room. 61½ once a week. 13, 30 once a week. 48 once or twice a week. 50 with 141 once a week. After second week, have No. 70 with mustard cloths under foment pads in bed, at seven A.M., and have dry warm sheet rub over; other treatment as ordered before, and have 185 tied behind; also 188 both night and day; have two sets to keep clean. Diet mostly 211; no tea; with this treatment, very decided improvement in circulation, complexion, and spirits; no crisis yet over liver, or on side, which will come. The chronic congestion will then disappear, circulation outwardly will safely and effectively relieve the long-continued congestion, which the best Allopathic treatment has, so far, only caused injury.

CRISIS CALICO is merely fine white calico made soft by rubbing; old linen will do.

SWOLLEN KNEES AND ANKLES FROM CHRONIC RHEUMATISM.—Put feet on hot-water tin, then use the cold spouting for one minute; then well dry-rub by two men till warm. Then spout again for two minutes, and dry-rub as before, first putting a little pomatum or olive oil on hands; do the above once a day.—At each treatment during the day rub in a little cod-liver oil on ankles, and wear dry spongio on knees and ankles underneath the flannel bandages.

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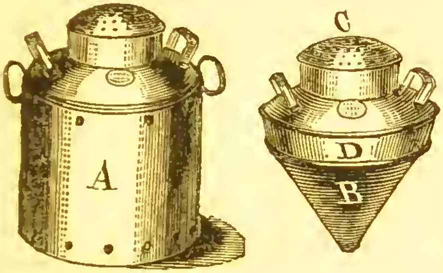
ADDENDA.



Steam and Spirit Lamp Bath. A, 6½ diameter, 8 deep to first rim. D, 1¾, B, 4½ deep; this sloping part holds a quart of water. C, perforated top. Inside A is a movable can, 3½ diameter, 2¼ deep, to hold a quarter pint of methylated spirits of wine, or rectified naptha, to place inside A; light the spirits, then put in can, C D, with sloping point B into the spirits. The person undressed, enveloped in blankets, or coverlids, or mackintosh, sits on a wooden-bottom chair, the steamer under. If at any time too hot, raise the blanket to let air in, or to make the spirits burn better. After steaming, sponge over with cold or tepid water.

(*From the "Times," January*, 1861.)

IT IS COLD THAT KILLS, AFTER ALL.

We know not by what freak of fashion it happens that the English people are wont to speak of severe weather in respectful terms, and honour with such epithets as "bracing," a season which brings mourning into many a family. Did they but realise the truth, these complimentary expressions would sound like the Greek euphemisms for the infernal regions, or the endearing diminutive appellations which mediæval gaolers loved to apply to instruments of torture. Heat and damp are treated with no such tenderness, and the most energetic adjectives and participles of the Anglo-Saxon language are freely employed to characterise these unpopular conditions of the atmosphere. Yet a little reflection would convince us that cold is a far deadlier enemy of the human frame than either. If heat kills its thousands, cold kills its tens of thousands. One need not be a physiologist to understand that that which forcibly closes the pores, suspends the functions of the skin, violently repels the blood from the surface to the interior vessels of the system, lowers the action of the heart, obstructs the circulation, and benumbs the extremities, must act injuriously on the vital powers. Hot and damp weather have their specific maladies, and the more vivid consciousness of weakness which these summer ailments produce has probably contributed to bolster up the vulgar error against which we are protesting. Superficial derangements are often more sensibly felt than those which make war on life itself; and, while the former are felt more or less by all, tho latter select their victims among persons already debilitated by want, disease, or old age. While the strong man is unconsciously summoning up his reserve of digestive power to repair the increased waste of tissue, the feeble lungs of the invalid are craving for fuel, which the over-taxed digestive organs can no longer supply fast enough. The "sensible warm motion" in the veins of the one, stimulated by exercise, easily resists the external cold, and abundant nutrition even creates an appetite for increased muscular exertion; while the starved organs and fibre of the other are wasting away like a burning lamp. It is simply a question of organisation. Delicate shrubs cannot survive an intense frost, and the vegetable world generally suffers in a greater degree than the animal from an excessively low temperature. Some animals, however, like certain plants, exhibit the devitalising effects of the winter by the habit of "hybernation," or passing this season in a state of sleep; while the bodily and mental powers of human beings inhabiting the frigid zone are dwarfed and stunted by the climate. It is strange, then, that we should welcome with so much zest an extreme of temperature so uncongenial to the vigour and longevity of our species.

No one who peruses the REGISTRAR-GENERAL'S returns, or even watches tho daily catalogue of deaths in our own columns, will be inclined to dispute these conclusions. The mortality of London for the week ending Saturday, January 19, reached the appalling number of 1,926 deaths—an amount which not only exceeds the estimated number by 585, but is about double the average of a few weeks during the autumn. When we remember the unprecedented quantity of rain that fell in the year 1860, we could hardly have a better illustration of the comparative effects of cold and damp on the public health. Of course, we were prepared to find that the increased aggregate was chiefly due to acute disease, especially of the respiratory organs. Accordingly, we are told that "pulmonary complaints, exclusive of phthisis, carried off in the week 702 persons, while the corrected average for corresponding weeks is only 301;" and that, among these, deaths from bronchitis have been nearly three times as numerous as usual at this time of the year. Apoplexy has been so common during this cold season that it is stated by one eminent physician to have almost assumed an "epidemic" form; we are surprised, therefore, that it does not exceed the average in this return by more than 44 to 30; but paralysis has increased in a still greater proportion; and "heart diseases were fatal in 119 cases, while the average is only 53." We learn from Dr. Letheby's Reports that in the city of London the same general results have been obtained in that district, though of a still more marked character, and the mortality there during last week actually rose within seven of the level reached at the height of the cholera in 1848. There is no appeal from facts of this kind. "Bracing" weather puts our constitutions to a severe test, and where the flickering torch is extinguished, it is highly probable that the vital flame is proportionably diminished even in the hardiest. Considering the present low type of disease, and the all but universal demand for stimulants in cases for which bleeding used to be esteemed a sovereign remedy, it is painful to think what might have been the effect upon the half-famished population in the East of London, who have no means of resisting the first assaults of sickness except by obtaining admission to the workhouse or the hospital, had the frost lasted as long as those of 1796 and 1814. It is destitution which, by lowering the stamina and reducing the means of nutrition and clothing just when food and warmth are most essential to life, swells the death-rate so fearfully. It is too probable that a large proportion of the surplus mortality was preventible—if those evils can be called preventible which nothing but habits of providence, still rarely cultivated among our working orders, or a perfect system of occasional relief still remaining to be devised, could have availed to ward off. A "struggle for existence" (to use an expression that has lately become popular) is perpetually going on—not, indeed, in the form of competition between different classes of society, but in the form of self-preservation among the lowest class. So long as there exists a vast body of workmen absolutely without capital or savings, and dependent on daily labour for daily subsistence, the accidents of temperature must swell the bills of mortality indefinitely. Cold immeasurably increases the poor man's wants, while it cuts short his ability to supply them, and sends him wandering about the streets. No wonder that he is tempted to spend the first sixpence which he receives in the purchase of stimulants to overcome the stupor of semi-starvation, which is too often attributed to drunkenness, when it is really the symptom of an arrested circulation and an exhausted brain. The general good health of sailors in the Arctic Regions proves nothing against the depressing influence of cold, for these sailors are picked men, in the prime of life, provided with the most generous diet, and protected with the utmost care against the effects of the climate. Under such circumstances it may, perhaps, be possible to become "acclimatised," and to feel the cold less the longer the exposure to it; but, where each succeeding day's starvation is drawing upon a stock of strength always waning and never replenished, the very opposite result must follow, and disease progress towards a climax. The mortality of the last week of frost has been heavier than that of any which preceded it, and no considerable diminution must be expected for some little time. Happily, we have now turned the third week in January, after which period we are taught, by "an average of 79 years," to expect a rise of temperature. If the old proverb is to be verified by an early and hot summer following on this memorable winter, let us not too hastily wish the frost back again, or forget that the weather which gives tone to the nerves, and a heightened air of comfort to the firesides of the rich, is far more noxious than the droughts of July, or the dreaded effluvia of the Thames, and carries famine and death to the poor man's home. There can be no doubt, however, about the general effect of cold upon the public health. The observations which we recently made upon this subject are confirmed by the invariable testimony of figures through a long period of time. In all the thirteen years which have elapsed since 1847, there is no exception to the established rule. Winter, whether mild or severe, is the season most dangerous to life in these regions of the globe. The first quarter of the year—that is to say, the interval between the last day of December and the first day of April—always yields the greatest number of deaths. Nothing short of an epidemic pestilence can interfere with this result. In 1849 and 1854, we were visited with cholera, and in these years, and those only, the deaths of the third quarter exceeded those of the first. In the latter of the two instances, however, cold soon re-asserted its powers. The winter of 1854-5 was very severe. The frost was not, indeed, quite so intense as it was a month ago, but it was of longer duration, and the consequence was that the deaths in the first quarter of 1855 considerably exceeded those of the previous summer, though the returns had been swelled by the effects of the plague. Apart from the results of these extraordinary visitations, nothing can be plainer than that the standard of public health rises with that of the temperature. Deaths are most numerous when cold is most severe. They decrease with unerring regularity as spring succeeds to winter, and become fewer still when summer succeeds to spring. As winter returns once more they once more increase, and so runs the course of mortality year after year, with the certainty of the seasons themselves. An epidemic, as we have said, will disturb the order of things; and as autumn is the time of epidemics, that season is liable to occasional excesses of mortality. For instance, the greatest number of deaths registered in any one of the fifty-two quarters composing the tables before us, is that returned for the cholera period of 1849—viz., 135,227; though the cold of Christmas, 1855, fell very little short of this in its effects, the deaths in that period being 134,542; but, with this exception, and the less conspicuous one of 1854, the gradual decrease of mortality as the sun acquires power, and its increase once more as that power declines, are features so constant that it is impossible to misinterpret them. Heat, in short, does us no harm, except when it contributes to the generation of a pestilence. In the ordinary course of things it is favourable to life; while cold, by creating demands which among the poorer classes cannot be satisfied, tends invariably to intensify privation, and so multiply deaths. The satisfactory character of the returns for last year is due in great part, no doubt, to the weather which prevailed, and which, though by no means agreeable, was distinguished, upon the whole, by moderate temperature. There was a good deal of cold at the beginning of the year, and its results are perceptible enough in the returns of the first quarter; but after this had disappeared, and before the cold of the present winter began, the mildness of the seasons was remarkable. We had really no hot weather at all, and consequently, though we suffered in other respects, we became exempted from the access of disorders which a hot summer or autumn often brings. Besides this, the incessant rain replenished our springs and purified our sewers, so that until winter overtook us, and the cold became felt, the mortality was extremely low. Once only in the fifty-two quarters is there a return below that for the third quarter of 1860; and, indeed, this exception would probably disappear if the figures were corrected according to the increase of population in the interval. We must not, however, omit to remark, that over and above the influence of atmospheric conditions, that of sanitary science seems to be making itself felt. We are assured that the activity of the health officers in various districts is at length producing its effects, and when this influence comes thoroughly into operation, we may look for a material modification of the quarterly returns. There is a large margin yet for improvement. As many as 90,000 deaths a-year are still considered preventible.

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